

RECREATION RESOURCE INVENTORY

STANDARDS AND PROCEDURES

- Draft Report -

Prepared for
Ministry of Forests
Range; Recreation & Forest Practices Branch
Recreation Section

by

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PREFACE

Viewpoint Recreation & Landscape Consulting was hired by the Recreation Section of the Range, Recreation and Forest Practices Branch to revise and update the current Ministry of Forests recreation resource inventory. This involved liaising with the Ministry of Forests, Recreation Inventory Working Group, other ministries, agencies, and other interested groups such as the Outdoor Recreation Council of B.C.

The inventory methodology is primarily based on early fieldwork conducted in the Dog Creek and Chilliwack Pilot Study Areas (Vukelich, 1995). These initial test inventories revealed significant deficiencies and prompted revisions to the recreation resource inventory data model and attributes. The Recreation Inventory Working Group provided valued feedback on the recreation resource inventory database attributes and DMR Group Inc. provided direction on the data model.

The river recreation inventory was field tested in February/March of this year (Szatory and Holland, 1995) and was based on the February 08, 1995 version of the recreation feature attributes. The inventory methodology used by the consultants was provided through consultation with Viewpoint Consulting and is incorporated into this document.

This document has previously been called the draft Recreation Resource Inventory Database Attributes and has undergone several revisions (February 20, 1995 is the last version). This current version includes the common standards and procedures for carrying out the fieldwork for a Forest Service recreation resource inventory (FSRRI) and elaborates on the relationship between the 12 themes.

Funding, in part, for this work is provided through the provincial Corporate Resources Inventory Initiative (CRII) and the Canada-BC partnership agreement on forest resource development, FRDA II.

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- George Sranko, MoF: Recreation Section

SUMMARY

This document discusses the standards and procedures for carrying out the fieldwork for a Forest Service recreation resource inventory (FSRRI). The FSRRI has 12 inventory themes. Only four are essential to a periodic Forest District update: recreation features; visual landscape, recreation opportunity spectrum and viewpoints. The remaining inventory themes may be updated as funds, time or staff permit or as is required by a planning process.

The report details:

- the definition of a recreation resource inventory;
- who is responsible to carry out the inventory;
- the history of the Forest Service recreation resource inventory;
- a rationale for the recreation resource inventory methodology update;
- major changes from the old inventory;
- integration with other resource inventories;
- 12 recreation themes;
- the relationship between recreation themes;
- the general fieldwork procedures for (all) recreation inventories;
- detailed descriptions of attributes within themes 1-8;
- special considerations for fieldwork procedures in themes 1-8;
- examples of standard map labels and field checklists for themes 1-8;
- a description of recreation and visual landscape management units;
- a description of how the recreation resource inventory 'fits' into the overall Ministry of Forests planning process; and
- recommendations.

The purpose of this document is to provide common standards and procedures for carrying out fieldwork for a Forest Service recreation resource inventory (FSRRI). It is currently in draft form, and intended for review purposes. The review period will be determined by the Recreation Section and the feedback will be incorporated into a final report.

TABLE OF CONTENTS

PREFACE	i
ACKNOWLEDGEMENTS ;	ii
SUMMARY	iii
TABLE OF CONTENTS	v
LIST OF FIGURES	xi
LIST OF TABLES	xii
1.0 INTRODUCTION	1
1.1 Purpose	1
1.2 What is a Recreation Resource Inventory?	1
1.3 Who is Responsible for a Recreation Resource Inventory?	1
1.4 History of Forest Service Recreation Resource Inventory	2
1.5 Rationale for Recreation Resource Inventory Methodology Update	3
1.6 Terminology	5
2.0 RECREATION INVENTORY OVERVIEW	6
2.1 Twelve Recreation Themes	6
2.2 Structure of Current Inventory	6
2.3 Major Changes in Moving From the Current Inventory	7
2.4 Common Attributes of All Themes	9
2.5 Relationship Between Recreation Themes	9
2.6 Integration With Other Resource Inventories	11
3.0 RECREATION INVENTORY FIELDWORK PROCEDURE	12
3.1 Overview of Fieldwork Procedures	12
3.2 Project Organization	13
3.2.1 Pre-Project Evaluation	13
3.2.2 Define Project Goals and Objectives	13
3.2.3 Project Management Plan	13
3.2.4 Project Work Plan	14
3.2.5 Project Deliverables	14
3.3 Public Involvement	15
3.3.1 Overview of Public Involvement	15

3.3.2 Developing a Contact List.	15
3.3.3 Choosing the Method: Mail-out Questionnaires; Telephone Interviews; Personal and Group Interviews	16
3.3.4 Incorporating Feedback	17
3.3.5 Public Review of Draft Inventory	17
3.3.6 Changes to the Draft Inventory	18
3.3.7 Presentation of Results	18
3.3.8 Document the Process	18
3.4 Pre-fieldwork Preparation	18
3.4.1 Importance of Pre-fieldwork Preparation	18
3.4.2 Research	18
3.4.3 Basic Supplies	19
3.4.4 Safety: Compliance with W.C.B. Regulations	20
3.4.5 Delineate Preliminary Units, Zones or Sites	20
3.4.6 Indentify Features For Field Testing	22
3.4.7 Review Daily Intinerary	22
3.5 Inventory Fieldwork	22
3.5.1 Variations in Fieldwork Procedures	22
3.5.2 Common Fieldwork Procedures	22
3.5.3 Taking Photographs and Slides	23
3.5.4 Taking Videos	23
3.6 Post-fieldwork Wrap-up	23
3.6.1 Review and Refine Field Maps and Attribute Sheets	23
3.6.2 Submit Initial Maps and Attribute Sheets For Review	24
3.6.3 Develop and Catalogue Photos/Slides and Negatives	24
3.6.4 Review and Edit Videotape	25
3.6.5 Completing the Recreation Resource Inventory Report	25
3.6.6 Summary by Mapsheet	26
3.6.7 Summary of Recreation & Landscape Management Units	26
3.7 Presentation of Results	27
3.7.1 Target Audience	27
3.7.2 Reports	27
3.7.3 Maps	28
3.7.4 Slides, Photos & Videos	28
3.8 Inventory Update	28
4.0 THEME 1: RECREATION FEATURES INVENTORY	29
4.1 What is a Recreation Features Inventory?	29
4.2 Recreation Features Attributes	29
4.2.1 Project, Recorder, Keypuncher and Date	29
4.2.2 BCGS Map Number	29
4.2.3 Data Identification (Polygon) Number	29
4.2.4 Recreation Management Unit Number	30
4.2.5 Recreation Features & Sub-Features	30

4.2.6 Feature-related Activities	36
4.2.7 Recreation Feature Significance	40
4.2.8 Most Scarce Feature	40
4.2.9 Feature Scarcity	40
4.2.10 Most Unique Feature	41
4.2.11 Feature Uniqueness	41
4.2.12 Activity Attraction Capability	41
4.2.13 Rating Recreation Feature Significance	43
4.2.14 Geographic Significance	43
4.2.15 Feature Sensitivity	45
4.2.16 Most Sensitive Feature to Recreation Use	45
4.2.17 Feature Sensitivity to Recreation Use	45
4.2.18 Most Sensitive Feature to Resource Development	45
4.2.19 Feature Sensitivity to Resource Development	46
4.2.20 Rating Feature Sensitivity	46
4.2.21 Management Class	47
4.2.22 Recreation Cover Requirement	48
4.2.23 Cultural, Historic or Archaeological Features	49
4.2.24 Statement of Rationale	49
4.3 Recreation Map Label Changes	50
4.4 Special Considerations for Fieldwork Procedures	50
4.5 Integration With Other Recreation Resource Inventory Themes	50
5.0 THEME 2: VISUAL LANDSCAPE INVENTORY	52
5.1 What is a Visual Landscape Inventory?	52
5.2 Visual Landscape Unit Attributes	53
5.3 Visual Sensitivity Rating	60
5.4 Visual Absorption Capability	61
5.5 Existing Visual Condition	64
5.6 Recommended Visual Quality Objective	66
5.7 Screens Inventory	68
5.7.1 What is a Screens Inventory?	68
5.7.2 Screen Attributes	68
5.8 VLU Map Label	70
5.9 Special Considerations for Fieldwork Procedures	70
5.9.1 Visual Landscape	70
5.9.2 Screens	71
5.10 Integration With Other Recreation Resource Inventory Themes	71
6.0 THEME 3: RECREATION OPPORTUNITY SPECTRUM INVENTORY....	72
6.1 What is a Recreation Opportunity Spectrum Inventory?	72
6.2 B.C. ROS Classes	73
6.2.1 ROS Class Definitions	73

6.2.2 ROS Class Codes	74
6.2.3 ROS Criteria Definitions	74
6.4 ROS Attributes	75
6.5 ROS Map Label	77
6.6 Special Considerations for Fieldwork Procedures	77
6.6.1 Delineating ROS Polygons	77
6.7 Integration With Other Recreation Resource Inventory Themes	79
7.0 RIVER RECREATION INVENTORIES	81
7.1 What is a River Recreation Inventory?	81
7.2 Common Attributes to Themes 4, 5 & 6	82
7.3 Special Considerations for Fieldwork Procedures	84
8.0 THEME 4: RIVER EXPERIENCE CLASS INVENTORY	86
8.1 What is a River Experience Class Inventory?	86
8.2 River Experience Classes	86
8.2.1 REX Definitions	86
8.2.2 REX Codes	88
8.2.3 REX Criteria Definitions	88
8.3 River Experience Class Attributes	89
8.4 REX Map Label	90
8.5 Special Considerations for Fieldwork Procedures	90
8.5.1 Defining a River Experience Class Zone	90
8.6 Integration With Other Recreation Resource Inventory Themes	92
9.0 THEME 5: RIVER FEATURES INVENTORY	93
9.1 What is a River Features Inventory?	93
9.2 River Feature Attributes	93
9.3 River Feature Map Label	96
9.4 Special Considerations for Fieldwork Procedures	96
9.4.1 Defining a River Features Zone	96
9.4.2 Potential Recreational Activities	96
9.5 Integration With Other Recreation Resource Inventory Themes	96
10.0 THEME 6: WHITEWATER CLASSIFICATION INVENTORY	98
10.1 What is a Whitewater Classification Inventory?	98
10.2 Whitewater Classes	99
10.3 Whitewater Class Codes	101
10.4 Whitewater Classification Attributes	102
10.5 Whitewater Classification Map Label	104
10.6 Special Considerations for Fieldwork Procedures	104

10.6.1 Defining a Whitewater Classification Zone	104
10.7 Integration With Other Recreation Resource Inventory Themes	104
11.0 THEME 7: RECREATION TRAILS & ROUTES INVENTORY	106
11.1 What is a Recreation Trails & Routes Inventory?	106
11.2 Recreation Trails & Routes Attributes	106
11.3 Trails & Routes Map Label	108
11.4 Special Considerations for Fieldwork Procedures	108
11.5 Integration With Other Recreation Resource Inventory Themes	108
12.0 THEME 8: VIEWPOINTS INVENTORY	109
12.1 What is a Viewpoints Inventory?	109
12.2 Viewpoint Attributes	109
12.3 Proposed Scenic Attractiveness Rating	111
12.4 Viewpoints Map Label	113
12.5 Special Considerations for Fieldwork Procedures	114
12.6 Integration With Other Recreation Resource Inventory Themes	114
13.0 THEME 9: FOREST SERVICE RECREATION SITES INVENTORY	115
13.1 What is a Forest Service Recreation Sites Inventory?	115
13.2 Link to Another Database: FTAS	115
13.3 Integration With Other Recreation Resource Inventory Themes	115
14.0 THEME 10: CAVE INVENTORY	116
14.1 What is a Cave Inventory?	116
14.2 Overview of Cave Inventory Attributes	116
14.3 Link to an external database	117
14.4 Cave Map Label	117
14.5 Integration With Other Recreation Resource Inventory Themes	118
15.0 THEME 11: FOREST INTERPRETIVE OR EDUCATION CAPABILITY	119
15.1 What is a Forest Interpretive or Education Capability Inventory?	119
15.2 Overview of Forest Interpretive Inventory	119
15.3 Database Attributes and Fieldwork Procedures	120
15.3.1 Step 1: Inventory of Features and Activities	120
15.3.2 Step 2: Identifying Interpretive Themes	121
15.3.3 Step 3: Assessing Interpretive Potential	122
15.3.4 Analysis of Interpretive Significance	122
15.3.5 Proposed Rating Scheme	123
15.4 Integration With Other Recreation Resource Inventory Themes	123

16.0 THEME 12: BACKCOUNTRY MONITORING INVENTORIES	124
16.1 What are Backcountry Monitoring Inventories?	124
16.2 Overview of PSU and REP Attributes	124
16.3 Link to an Another Database .	125
16.4 Special Considerations for Fieldwork Procedures	125
16.5 Integration With Other Recreation Resource Inventory Themes	125
17.0 RECREATION & VISUAL LANDSCAPE MANAGMENT UNITS	126
17.1 What is a Recreation & Visual Landscape Management Unit?	126
17.2 Link to an Administrative Layer in Corporate Database	126
17.3 Procedure for Classifying Management Units	126
17.4 Integration With Recreation Resource Inventory Themes	126
18.0 RECREATION INVENTORIES AND PLANNING DECISIONS	127
18.1 How Does it All Fit Together?	127
19.0 RECOMMENDATIONS	129
20.0 BIBLIOGRAPHY	130
COMMENTS	
APPENDIX A - Glossary of Terms	
APPENDIX B - Recreation Feature Definitions and Photos (to be included at a later date)	
APPENDIX C - Field Checklists For Themes 1-8; Database Attribute Sheets For Themes 1.12	
APPENDIX D - ROS and REX Criteria	
APPENDIX E - River Recreation Inventory Pilot Test: Methodology Re-Write	

LIST OF FIGURES

1. Layers of Recreation Themes
2. Recreation Themes and Recommended Management Objectives ~
3. Recreation Resource Inventory Fieldwork Components and Process
4. Landscape Viewing and Activity Attraction Capability
5. Non-VEG and Percent Alteration
6. Steps in the ROS class Delineation Process
7. Steps in the REX Delineation Process
8. Horizontal Angle of View
9. Recreation Resource Inventories and the Planning Process

LIST OF TABLES

1. 1991/94 Changes to Theme 1 Map Label Attributes.....

2. Overview of the ROS Class Rating Scheme .

3 Overview of the REX Rating Scheme.....

4. Phase I: Assessing Interpretive Potential for Candidate Sites

5 Phase II: Assessing Interpretive Potential for Candidate Sites.....

1.0 INTRODUCTION

1.1 Purpose

The purpose of this document is to present draft recreation resource inventory standards and procedures to RIC, Forest Service (recreation and visual landscape) staff, other ministries and recreation agencies to provide an opportunity to review and comment prior to official acceptance of the standard.

1.2 What is a Recreation Resource Inventory?

Identification of the elements and features within a resource base is one of the fundamental steps in resource management. This identification process is called an inventory.

To understand the recreation resource inventory, it is necessary to understand what recreation is. According to the Ministry of Forests, Recreation Manual:

'Recreation is defined as any mental or physical revitalization and as the voluntary pursuit of leisure time. Outdoor Recreation is recreation that takes place out-of-doors, and forest recreation takes place in a forest or wildland setting (1991) '

Provincial Forests and other unalienated Crown lands for which the Ministry is responsible cover approximately 85% of the province and include lands such as alpine and sub-alpine tundra, wetland, desert, rock and ice. These lands contain features that provide an opportunity for recreation experiences. These elements and features can also be called 'amenities'.

Identifying the somewhat abstract amenities component of the physical world is the subject matter of a recreation resource inventory. These valued amenities are called recreation resources and are described in a recreation resource inventory.

1.3 Who is Responsible for a Recreation Resource Inventory?

The Ministry of Forests is charged with the mandate to manage the recreation resource on lands under its jurisdiction. This mandate includes the development and maintenance of a 'recreation resource inventory' It is established in Sections 2, 3 and 28 of the *Forest Act* (Chapter 2). Ministry policy for the recreation resource inventory is established in MoF policy II-REC-006 of the *Ministry Policy Manual*.

Timber companies who have a Tree Farm Licence must also develop and maintain a recreation resource inventory. Section 28(d)(i) of the *Forest Act* requires that a recreation resource inventory be prepared as part of a Tree Farm Licence Management and Working Plan (TFL MWP). Executive direction of June 30, 1089 (Section 3.4) requires that the TFL licensee "prepare this inventory at his own cost, to the MoF standards and in harmony with MoF needs".

The recreation resource inventory work is usually done by a ministry (recreation) employee, timber company employee or a hired consultant. Each should be familiar with

all components of the recreation and/or visual landscape inventory and have a good knowledge of the area's:

- *current and potential recreation use (e.g. Recreation Use Statistics, trends)*
- *ecoregion (e.g. ecosection)*
- *forest flora and fauna*
- *terrain classification*
- *access conditions*
- *forest resource harvesting and management practices*
- *current and planned development and industrial activities*
- *demographic characteristics*
- *location and types of present or potential resource conflicts*

Identification and evaluation of recreation resource values requires the recreation inventory specialist to strive for objectivity through developing an understanding of the inventory process. Whereas private individuals are entitled to their own personal views, the recreation inventory specialist must have a high level of sensitivity to the entire spectrum of outdoor recreational pursuits demanded by the public, and an understanding of the biophysical and cultural features that are necessary to initiate and support recreational pursuits. This can be achieved by keeping abreast of current trends in outdoor recreation and through open contact with user and community groups; local recreation clubs and organizations, associations, conservation groups, the Outdoor Recreation Council of B.C and the general public.

1.4 History of Forest Service Recreation Resource Inventory

Recreation land capability inventories were initiated in B.C. in the late 1960's through the Canada Land Inventory (CLI) program. This initiative was later kept alive as part of the B.C. Land Inventory (BCLI) program by the Environment and Land Use Secretariat. The inventories were completed for approximately half of the province, and conducted by a centralized agency at a scale suitable to support broad provincial land use emphasis decision only.

After 1975, following the disbanding of the Secretariat, there was a vacuum in recreation resource inventory. Protection, allocation or development of biophysical, cultural, and other aesthetic resources was not happening, or was ad hoc at best, on lands under Ministry of Forests (MoF) jurisdiction. To fill this vacuum, and allow integration of social forestry values in forest management, the Forest Service modified outdoor recreation resource inventory methods then being developed by the Ministry of Environment (Hignett and Block, 1982) and first implemented a Forest Services Recreation Resource Inventory (tSRRI) in 1981.

The FSRRRI was developed to:

- include all biophysical, cultural, aesthetic and other amenity features;
- support all levels of planning (provincial, regional, local and operational);
- provide direct linkage to the forest inventory database and analysis;
- maintain, as far as possible, compatibility with previous inventories;

- accommodate new requirements;
- enable decentralized input, both in a geographic and data source sense; and
- enable immediate province-wide implementation at a large scale and subsequent refinement according to priorities.

The FSRRRI is a land-based inventory. Land units (polygons) are delineated and rated accordingly to the resources within the area. The information recorded serves two main purposes: (1) protection and management of the resource base, and (2) allocation and management of recreational use.

For each land unit, the map label identifies features within the land unit, their relative significance, sensitivity, present and potential recreation use, present state of development, and a forest management regime that was compatible with maintaining the recreation resources present.

Because of the nature of recreation, information is derived from existing inventories, other agencies, organizations, knowledgeable individuals and general public, while the remaining data is gathered from maps, air photos, and confirmed through field work.

In addition to collecting and recording field data, forest districts and TFL, licensees are responsible for soliciting information from all existing sources through use of the media and direct contact with recreation user groups to verify and subsequently add to the recreation resource inventory.

By 1984, a broad application of the recreation resource inventory was carried out across the province in preparation for the Forest and Range Resource Analysis. This meant that every hectare of provincial forest land was covered by a recreation land unit with a label describing the broad character of recreation resources within it.

Subsequent evolution, refining and updating of the initial inventory resulted in the inclusion of recreation opportunities and sensitive visual landscapes.

Digitization of the recreation information has proceeded at a slower rate but parallel with the forest cover inventory updates.

1.5 Rationale for a Recreation Resource Inventory Methodology Update

The Forest Resources Commission (FRC) Report, "The Future of Our Forest", released in April 1991, recommended that:

"the government of British Columbia undertake a commitment to complete inventories for all renewable forest resource values using standardized

compatible systems and that a Provincial Forest Resource Inventory Committee be established to plan and develop a program for these inventories"

In response to the FRC, the BC and federal government have jointly funded the development of improved and integrated data sets on forest and related resources. A Resource Inventory Committee (RIC) was established and is facilitating inventory integration by analyzing information needs and overseeing development of common standards and methodologies for sampling, classifying and storing resource data. RIC members include inventory specialists from Federal, Provincial, and First Nations governments and resource interest sectors. RIC represents all resource disciplines, and through its work, promotes inter-agency cooperation to increase efficiency.

Seven task forces were formed through RIC: Aquatic Ecosystems; Atmospheric; Coastal; Cultural; Earth Sciences; Land Use; and Terrestrial Ecosystems. The Cultural Task Force has three smaller working groups to deal with inventories for: Cultural Heritage, Tourism and Recreation.

The Recreation Inventory Working Group (RIWG) was formed by the Recreation Section of the Range, Recreation and Forest Practices Branch to meet the recreation resource inventory development needs of the Cultural Task Force, and to assist the MoF Inventory Branch in the restructuring of a new ministry inventory data model. The RIWG is providing this input to ensure recreation resources are included in a corporate resource inventory database so they may be more readily applied in land use analysis and planning activities. This input will identify the recreation, visual landscape, cultural and wilderness resource values to be included in the new data model.

The Inventory Branch has been carrying out a data modeling project to redefine and expand the current inventory database to include additional recreation and vegetation data. This project will be a key component in developing the next generation inventory database. It will be used to define, in detail, the standards and procedures for inventories, with respect to collecting, storing and reporting data attributes and their associated values.

1.6 Terminology

The terminology used in this report is targeted towards individuals who have a basic understanding of geographic information systems (GIS) and recreation resource inventories. Individuals who find it difficult to understand words such as polygons, databases, layers, and attributes should refer to the following publications:

- 'The Computer Glossary: The Complete Illustrated Desk Reference' (Freedman, 1993)
- 'An Introduction to Geographic Information Systems: A Seminar for Regional and District Staff (Ministry of Forests, 1992)
- 'Recreation Manual ' (Ministry of Forests, 1991)

A glossary of terms is also available in Appendix A.

2.0 RECREATION INVENTORY OVERVIEW

2.1 Twelve Recreation Themes

There are twelve themes in the new recreation resource inventory:

- recreation features;
- visual landscape (includes screens);
- recreation opportunity spectrum (ROS);
- river recreation: experience class, features, whitewater;
- recreation trails and routes;
- viewpoints;
- Forest Service recreation sites;
- caves; education or interpretive capability; and,
- backcountry monitoring plots.

Only four of the twelve themes are essential to a periodic district-wide update: **recreation features, ROS, visual landscape and viewpoints** (including a scenic attractiveness rating). The remaining themes may be updated as funds, time and staffing permit or as is required by a planning process. This document lays out the procedures for carrying out an inventory for each theme, if and when it's conducted. Even without a detailed inventory of these remaining themes, the recreation values can still be recognized, in broad terms, through the 4 themes mentioned above. For example, in absence of a detailed river features and experience class inventory, river values can be recognized as a recreation feature within a biophysical land unit and rated accordingly to its recreation significance, sensitivity and scenic attractiveness.

The databases for themes 9-12 are not housed in the MoF corporate database, but rather are linked to an outside database which can be updated independent of the ministry inventory update schedule.

2.2 Structure of Current Inventory

The current recreation resource inventory structure is limited to 2 layers in the corporate database (layers 47 and 51). One layer contains the 'dummy graphic' and the other contains all the recreation resource inventory information. This information includes:

- polygon number (unique to each BCGS mapsheet)
- management code (visual landscape values);
- recreation features;
- feature-related recreation activities;
- feature significance;
- management class; and

- recreation opportunity spectrum (ROS) class.

The statement of rationale (text data) is not entered into the corporate database (although it is gathered at the time of the inventory update).

Visual landscape, recreation features and ROS inventories were merged for analysis purposes and were difficult to use operationally (e.g. visual landscape and ROS boundaries distorted the 'recreation' features land unit boundaries; the distinction between land units that are primarily driven by visual or recreation values is unclear at times).

2.3 Major Changes in Moving From the Current Inventory

All themes within the database are unique and represent different data types. These broad data types are land units (polygons), zones (lines) and site-specific areas (points).

Themes 1-8 are housed within the corporate database and themes 9-12 link out to another database (e.g. FoxPro, Excel or SAS). Additional themes would represent site-specific data linked to an external database (may be added at a later date).

The major changes proposed for each theme in the new FSRRI are:

Recreation Features (land units/polygons)

- a separate database layer;
- a field checklist;
- addition and/or modification of recreation features and sub-features;
- integration with other inventory classifications (e.g. MELP, terrain classification);
- grouping of similar types of activities
- delineation between existing and potential activities
- a feature sensitivity to human alteration (biophysical and social);
- a cultural code representing archaeology and cultural/heritage values (integrated with Ministry of Small Business, Tourism and Culture).

Visual Landscape (land units/polygons)

- a separate database layer;
- a field checklist (increased objectivity);
- a scenic attractiveness rating (SAR) of combined units attached to key viewpoints (currently being developed);
- visual landscape unit (VLU) - unique polygon identification to enable crossing of mapsheet boundaries;
- digital terrain model images, photos, slides and video footage can now be linked to any visual landscape unit via viewpoints;
- inclusion of screens (data type: line segments/zones);
- screens are broken up into zones with information attached (e.g. type of screen).

Recreation Opportunity Spectrum (land units/polygons)

- a separate database layer;
- addition of a new classifications: roaded natural (RN), natural (N) and roaded modified (RM). Both are a finer breakdown of Roaded Resource Land RRL). RN and N provide information on areas that are natural-appearing, but do not meet the size or distance from road criteria of Primitive or Semi-primitive classifications,
- separation of existing ROS classes and recommended/approved ROS class objectives.

River Recreation (line segments/zones)

River Recreation Features

- a new database layer;
- includes features, activities, significance, sensitivity, and management classification (definitions the same as recreation 'land' features);
- is line data (segments);
- is integrated with Ministry of Environment, Lands and Parks (MELP) watershed and stream atlas.

River Experience Class

- a new database layer;
- similar classification to ROS land units, but do not have a distance from road or size criteria (based on the 'river' experience);
- sub-division of Modified experience class into Modified River, Compatible Alteration (MRC) and Modified River Incompatible Alteration (MRI).

Whitewater Classification

- a new database layer;
- based, in part, on international whitewater classification (includes flatwater, unrunnable and unclassified);
- used to help determine potential activities in river. recreation features inventory for planning purposes.

Trails (line segments/zones)

- a new database layer;
- location and identification includes graphic generation of trail profile
- line data uses the same methods for river recreation
- includes features, activities, significance, sensitivity and management class

Site-specific Recreation Data (site-specific areas/point data)

- identification of sites, trailhead, viewpoints, caves, backcountry monitoring sites, interpretive sites etc.;
- each data type will be linked to a separate database (e.g. FTAS for sites and trails).

2.4 Common Attributes to All Themes

- All themes have the following attributes:
- project name or number
- recorder name
- date of fieldwork completion (recorder)
- keypuncher name (data entry clerk)
- date of data entry
- BCGS map number (1:20 000 scale)
- data identification number (for polygon, line or point data)
- comments or statement of rationale (text field)

Each database theme is automatically linked to the forest district and region code when the map information is digitized. Before each theme is examined, a basic understanding of recreation resource inventory procedures is needed.

2.5 Relationship Between Recreation Themes

Each theme is inter-connected and a combined resultant layer can be generated through GIS to produce any combination of themes and/or attributes of themes. The best way to visualize this relationship is a stack of transparent maps that can be overlaid in any order and with any number of map 'layers' and/or themes (figure 1 illustrates this point).

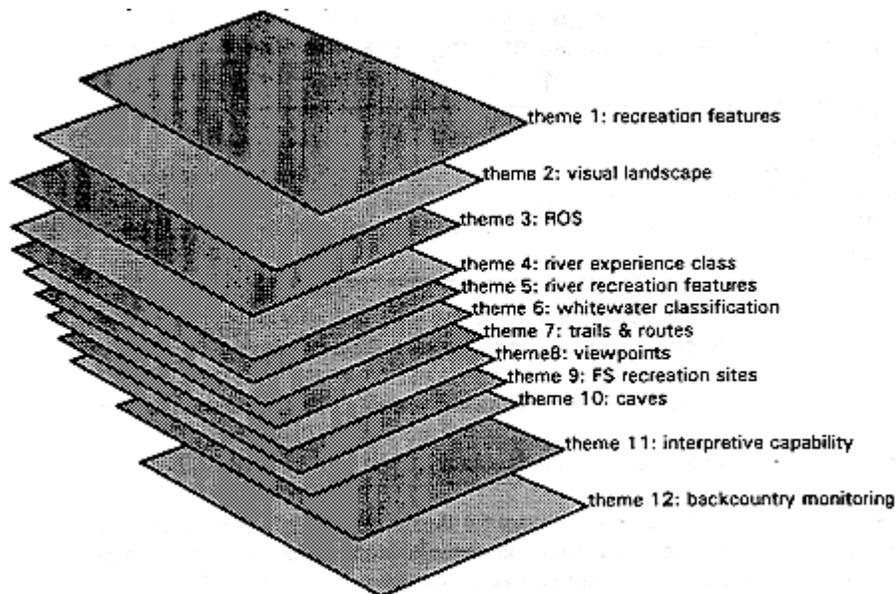


Figure 1: 'Layers' of Recreation Themes

An inventory report can be generated using the database for any of the above themes or combinations of themes.

A recreation resultant layer, along with timber and range inventory data forms the basis of education and interpretive capability (refer to figure 8).

It is important to note that the inventory is not limited to 12 themes. Additional themes for point data may be included in the future by merely changing the data types. Theoretically, all the point data may be put on 'one' layer within GIS and distinguished by data type.

Only a recommended management class and cover requirement (explained in upcoming section) are suggested during the inventory phase of resource planning. The approved management class and cover requirement listed in the inventory database is not done at the tune of the inventory, but at a later date under a planning process.

The following diagram (figure 2) illustrates the relationship between recommended management objectives for all themes:

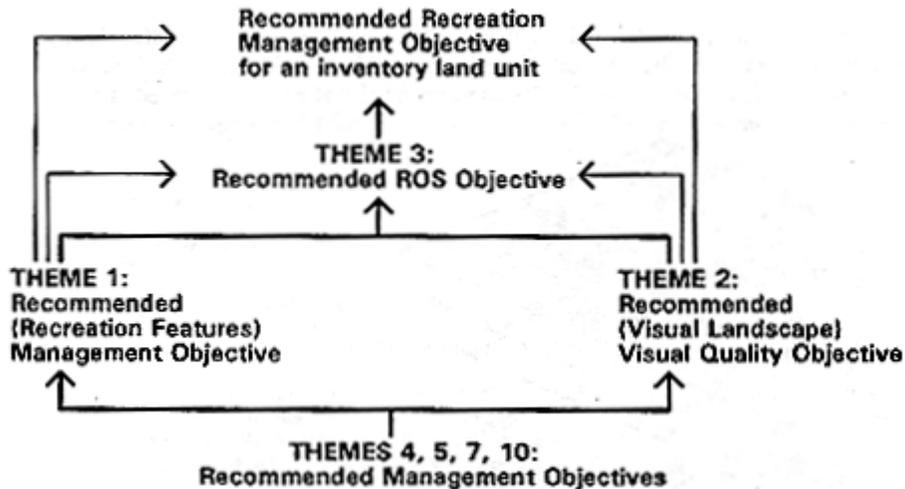


Figure 2: Recreation Themes and Recommended Management Objectives

The above diagram could be interpreted to read:

- Recommended management classes for themes 4, 5, 7, 10 influence themes 1 and 2. If themes 4, 5, 7 and 10 are not completed, then the values for rivers, trails/routes and caves are considered as features within theme 1;

- The recommended recreation management objective for the land unit is based on ROS objectives, as well as, management objectives set out in themes 1 and 2. The degree of 'acceptable' alteration is linked to the expected ROS setting. For example, a Rural ROS setting may withstand a higher degree of alteration than a Roded Natural ROS setting; and
- Recommended visual quality objectives are part of the recommended 'recreation' management objectives of a land unit. In other words, it should not be done in isolation' i.e.as a minimum, not without a recreation features recommended management class.

The recommended management objectives are listed in the statement of rationale. These **objectives must be clear and measurable** because they may be used for a recreation impact assessment at a later date. Without measurable objectives, how can you determine if the recreation values within the land unit, zone or site have been protected or maintained?

Area of interest land units (polygons) will still be included as a resultant theme within the database (discussed in more detail in upcoming section on management units). These areas of interest include: Recreation Management Units (RMU) and Visual Landscape Management Units (LMU or VLMU). A management unit would be defined and managed for the values outlined in a higher level plan (refer to section 17.0).

This new Forest Service recreation resource inventory (FSRRI) will better enable the maintenance of the integrity of each theme's data and graphic formats. The FSRRI will use photo, video and computer imagery in all themes.

2.6 Integration With Other Resource Inventories

This recreation resource inventory integrates with the following resource inventories within the Forest Service and other ministries:

- FS vegetation inventory
- FS range inventory
- MELP, Fisheries Branch (Stream Summary Information)
- MELP, Habitat Inventory Section (Terrain Classification)
- MELP, Parks Branch? Conservation Services Section
- SBTC, Heritage Conservation Branch (CHRIS)
- SBTC, Archaeology Branch
- SBTC, Tourism Section

The recreation resource inventory can be merged into other computer databases (using a translation program) or used as a hard copy document for planning purposes by other ministries and agencies (e.g. Outdoor Recreation Council of B.C.).

3.0 RECREATION INVENTORY FIELDWORK PROCEDURES

3.1 Overview of Fieldwork Procedures

The fieldwork procedures are made up of six essential components: project organization; public involvement; pre-fieldwork preparation; inventory fieldwork; post-fieldwork wrap-up; and the presentation of results.

An illustration of the recreation resource inventory fieldwork process is shown in figure 3 below:

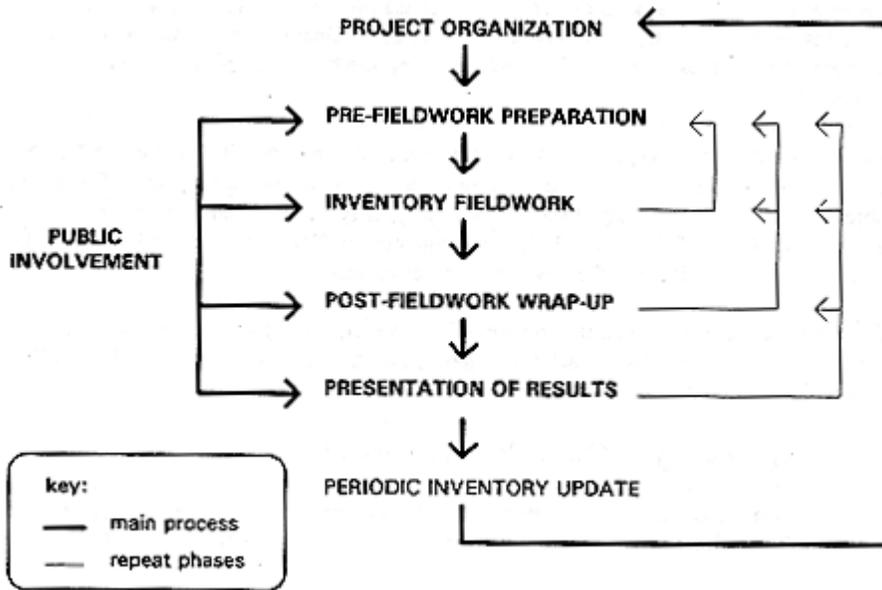


Figure 3: Recreation Resource Inventory Fieldwork Components and Process

Public involvement is an important part of the recreation resource inventory and is considered throughout the inventory process.

Each step in the process is not inflexible - steps can be repeated or carried out at the same time. For example, if new information becomes available during the presentation of results and it is 'do-able' within the project deadline, more inventory fieldwork can be done.

The following step-by-step procedures, apply to all recreation resource inventory themes described in this report. However, there will be variations, especially to the fieldwork procedures for specific themes. These variations or special considerations will be discussed in the upcoming theme sections of the report.

3.2 Project Organization

Project organization for a recreation resource inventory involves the following:

3.2.1 Pre-Project Evaluation

Before starting a recreation resource inventory project, determine if you have the resources to successfully complete it. Your consideration should include:

- is the project 'do-able'?
- what is the optimal time of year to do the inventory?
- what are the forecasted weather conditions in the study area?
- what is the type and ease of access to the study area?
- do staff/proponent have appropriate expertise?
- how much time commitment is necessary for each component of the inventory process?
- what are the costs? (e.g. staff, transportation, accommodation, maps)
- What is involved in producing the deliverables?(e.g. hard copy maps or digital map files)

3.2.2 Define Project Goals and Objectives

It is important to have clear goals and measurable objectives before you begin the inventory project. Objectives for each component of the inventory need to be defined.

3.2.3 Project Management Plan

Develop a basic project management plan - this could be a very comprehensive document or a brief outline. It depends on the size and complexity of the project.

The management plan is an important document because it helps keep you within budget and on time for the project deadline.

The project management plan should include:

- clear staff roles and responsibilities;
- a simple cost breakdown for each phase of the project;
- fee schedule;

- the type and extent of public involvement and cooperation required with other ministries and agencies;
- safety procedures (according to current W.C.B. regulations);
- quality control of inventory mapping and reports early in the project (this will save a lot of time re-doing maps later!); and
- time-line or schedule for completing each inventory component.

The total time (percentage of total project) involved for each stage of the project is approximately:

- project organization: 5%
- pre-fieldwork preparation and public involvement: 15 - 20%
- fieldwork: 25 - 30% (depends on access difficulty and number of sites/areas to verify)
- post-fieldwork wrap-up: 30 - 40% (depends on the complexity and quantity of maps and photos/slides)
- presentation: 10% (depends on quality and type of output)

3.2.4 Project Work Plan

Once the program management plan is completed, design a project work plan for each inventory component which includes:

- preliminary daily itinerary (describes what should be completed and how to do it)
- staff/proponent roles at various stages of the project

3.2.5 Project Deliverables

There are several considerations to be made in choosing an appropriate format and materials for the project deliverables:

- what kind of final product do I want?
- who is my audience (FS staff, other agencies etc..)?
- what type of materials should be used?; do the materials need to be durable?
- what map scale is appropriate for operational and presentation purposes? (the Forest Service standard for operational planning is 1:20 000 scale maps; Fisheries is 1: 50 000 scale)
- quality of photo, slide or video presentation (operational use or public presentation ?)

The type and quantity of deliverables can greatly affect project costs -research the cost prior to starting the project.

3.3 Public Involvement

3.3.1 Overview of Public Involvement

Public involvement is an integral part of the recreation resource inventory process. It involves the following steps:

1. develop a contact list (an up-to-date list of public and agency contacts within the study area must be submitted as part of the inventory update);
2. choose an appropriate method to solicit information from the public (mail-out questionnaires; telephone interviews; group or personal interviews);
3. Incorporate the public feedback into the inventory;
4. review of the draft inventory by the public;
5. revise and/or add new information to the inventory;
6. present the results; and, 7. document the process

It is important that the interviewer has researched the study area prior to the interview. Familiarity with the area saves time and enables the interviewer to ask more specific questions. This research is done during pre-fieldwork preparation (refer to section 3.4.2) and the public 'contact' takes place either at the pre-fieldwork preparation or fieldwork stage.

3.3.2 Developing a Contact List

An initial contact list can be developed from the following sources:

- previous recreation resource inventory report (e.g. correspondence)
- interviewing key personnel at the forest district office
- local recreation centre
- Chamber of Commerce
- local schools and colleges
- membership directory from Outdoor Recreation Council of B.C.
- user and community groups,
- local recreation clubs and organizations,
- associations,
- conservation groups.

Document the name, title, organization; phone number, address, and where they live or work from the individuals on the above list.

3.3.3 Choosing the Method

Four methods of soliciting recreation information will be discussed. The essential components of each method will be listed. Using the initial contact list, choose one or a combination of the following methods:

Mail-out Questionnaires

- develop a questionnaire (e.g. reference previous recreation resource questionnaires from: MoF and Parks);
- keep it simple;
- include a cover letter (explain what you are doing and why);
- keep it 1-2 pages in length;
- include a map of the study area with place, road names, scale bar and north arrow. (e.g. include as an attachment);
- include section for: name, address, phone, comments etc..
- test the questionnaire before public distribution.

Telephone Interviews

- develop a questionnaire
- introduce yourself and explain what you are doing and why
- ask your questions - keep the conversation brief (possibly set-up a personal interview if they have detailed information)
- summarize the conversation;
- record their name, address, phone, where they live etc..
- send out follow-up letters explaining the process and thanking individuals and groups for participating.

Personal Interviews

- develop a questionnaire/list of questions;
- bring an 'overview map' which has contour information, place and road names; people could draw locations, along with their name and phone number on the map;
- use a tape recorder if appropriate (only if people give permission);
- provide a photocopy handout (1 page) which explains: what the recreation resource inventory is; why the Forest Service updates the inventory; how people can participate; and what is done with the public feedback;
- record their name, address, phone, where they live etc..
- be sure to ask people if they wouldn't mind a follow-up call (e.g. verify, access, clarify or add to information).

Group Interviews

- notify public in advance (e.g. at least one month)
- place a couple of ads in the local newspapers; put posters up around town/city
- choose and book a location that is easy to access and is convenient for the general public (e.g. recreation center or shopping mall); book in advance!
- offer a couple of interview dates (if possible) and different locations (depends on size of study area)
- choose a time which would suite people with different work schedules (e.g. 9 am to 9 pm)
- distribute a questionnaire or 'feedback' form which includes name, address, phone number and a comment section at the presentation or 'open house';
- display a color contour map of study area (ensure that the scale is detailed enough to have important place names and roads); attach the map to a wall;
- provide people with erasable pencil crayons to write on the map or maps; be sure to include their name and phone number on the map beside their comments and/or drawings;
- 1:20 000 scale, mylar, planametric cadastral maps could also be used in conjunction with an overview contour map (1: 100 000); people-could draw locations, along with their name and phone number on the detailed map;
- use a tape recorder if appropriate (only if people give permission);
- provide general Ministry of Forests literature, as well as, a photocopy handout (1 page) which explains: what the recreation resource inventory is, why the Forest Service updates the inventory; how people can participate; and what is done with the public feedback; and,
- be sure to ask people if they wouldn't mind a follow-up call (e.g. verify access, clarify or add to information).

3.3.4 Incorporate Feedback

Incorporate the public feedback into the inventory. This information is part of the research that is done during the pre-fieldwork preparation (section 3.43).

3.3.5 Public Review of Draft Inventory

Once the fieldwork and post-fieldwork wrap-up has been completed, the public is invited to review the preliminary results of their input before the inventory is finalized at the presentation of results. This can be accomplished by making the maps and report available for viewing for a period of time at the Forest District office.

The presentation of the draft inventory contains the same elements as the group interview (section 3.3.3), with the addition of the following suggested elements:

- keep it simple;
- provide a 1:50 000 scale map of a portion of the area which has the most variety in features and activities;
- display photos or slides of the area (include a brief description, mapsheet and data ID numbers for reference);
- display 'feedback' sheets in a prominent location.

3.3.6 Changes to the Draft Inventory

Feedback from the public review is incorporated into the draft inventory maps and reports. Some field verification and/or additional photos may need to be taken, depending on the time remaining before the inventory dead-line.

3.3.7 Presentation of Results

Reports, maps and photos of the recreation resource inventory presented to the public should be of a higher quality than those used for 'in-house' operational purposes.

Also refer to section 3.7;1 (Target Audience).

3.3.8 Document the Process

Maintain records of the public involvement process and of all information received (locations, dates etc.). Include the 'process' as an appendices to the recreation resource inventory report (section 3.7.2) or under separate cover.

3.4 Pre-fieldwork Preparation

3.4.1 Importance of Pre-fieldwork Preparation

Pre-fieldwork preparation is important because it saves time, money and eliminates duplication.

3.4.2 Research

Researching the study area prior to fieldwork and public consultations is essential for a quality recreation resource inventory. This research is comprised of the following sources:

- previous recreation inventories in study area;

- existence of adjacent recreation inventories (classification should be similar and follow the same land unit boundaries - regardless of the administrative boundary);
- circulate an informational sheet on the project to all Forest District staff and request feedback;
- contact other ministries and inform them of what you need - they will have current information on hunting patterns, sport fishing streams (and restrictions), tourism operators, terrain classification maps etc.
- contact other agencies, such as the Regional District;
- review recreation user group publications (e.g. newsletters, periodicals and books);
- summarize research to date for upcoming public involvement (refer to section 3 .3) and in preparation for the preliminary delineation of units, zones or sites (refer to section 3.4.5).

3.4.3 Basic Supplies

The basic supplies needed to complete a recreation resource inventory are:

- air photos and/or orthophotos (choose appropriate scale, with matching pairs);
- other maps (e.g. planimetric cadastral, TRIM); 1: 20 000 scale for operational planning and 1: 50 000 for fieldwork; map scale depends on size of project and type of use;
- 'current' road map of study area (hint: check with Forest District engineer for road conditions);
- camera and/or videorecorder;
- appropriate film and/or videocassette;
- tape-recorder (optional: may be useful while flying over study area and taking photos/slides);
- theme checksheets or database attribute sheets;
- clip-board;
- omnichrome and lead pencils;
- small waterproof notebook and sheets (e. g. Duksbak Waterproof #30)
- flagging tape;
- compass;
- 2-way radio, with spare 'charged' batteries;
- binoculars (optional);
- bear repellent (optional);
- first-aid kit (W.C.B. approved); and,
- appropriate footwear and clothing for time of year and climate.

3.4.4 Safety: Compliance with W.C.B. Regulations

All safety precautions must be in compliance with Worker's Compensation Board Regulations (W.C.B.).

- obtain a W.C.B. number (if not a government employee);
- vehicles in safe working condition (certificate and/or sticker showing that all vehicles have passed inspection by licenced vehicle inspector);
- written description of an established Occupational Health and Safety Program, which includes:
 - i. check-in procedure,
 - ii. accident investigation procedures,
 - iii. emergency procedures in case of accident, and
 - iv. procedures for transporting an injured worker.
- comply with all W.C.B. first aid kits; first aid tickets; emergency transportation vehicles and stretchers.

3.4.5 Delineate Preliminary Map Units, Zones or Sites

Map units, zones and sites are used in a recreation resource inventory to identify areas with distinct landform features, recreation resource values or other types of information which is useful to a recreation resource inventory. Each recreation resource inventory theme describes the use of either a map unit, zone or site.

Map Units (Polygons)

Map units represent land or water areas with boundaries (no size or shape criteria). The boundaries in a preliminary 'recreation' map unit is based on similarities between physical landform features and the setting (refer to sections 4.2.12 and 6.2). Examples of map units include: visual landscape units and recreation features land/water units.

Map Zones (Lines)

Map zones are linear corridors or segments of corridors with pre-determined widths. Corridors include: rivers, road screens and trails. The length of a map zone depends on the similarities between physical landform features and the setting (refer to sections 4.2.12 and 8.2). The width depends on the type of recreation resource inventory being done. Examples of map zone types include visual landscape screens and river recreation features.

Map Sites (Points)

Map sites are site-specific areas on a map which represent recreation resource values or other types of information which is useful to a recreation

resource inventory. The GIS jargon for map sites are 'point' locations on a map. These points usually have georeferenced information attached to them identifying what they are and if they are linked to another database. Examples of map sites or 'point' locations are boat launching sites and viewpoints.

Delineating preliminary map units, zones or sites involves:

- referencing the manual, "*Interpretation of Landforms from Aerial Photographs* (Nurettin, 1979), delineate landform features on the air photos as preliminary map units (hint: use a transparent overlay or an omnichrome pencil on the photos);
- using aerial photographs...

"Aerial photographs can be used to obtain up to 90% of the recreation features information. They are particularly important in British Columbia because:

1. *group access is limited throughout much of the Province, and-it is not feasible to fly across every part of a study area; and*
2. *the complexity of terrain, climate and vegetation in B.C. leads to a great variety of recreation features; air photos are the best approach to mapping this variety when inventorying a large area.*

...It is important to complete a considerable proportion of the required air photo interpretation before entering the field." (Hignett & Block, 1982)

- an existing terrain classification map would also be an excellent reference - check with MELP or Maps BC:
- identify the features, based on the appropriate recreation resource inventory theme classifications (e.g. if you are doing a recreation features inventory, identify the feature attributes etc.);
- transfer the map information (unit, zone or site) and attribute codes onto the 1:50 000 contour basemap - this is your 'field' map and preliminary recreation resource inventory; and
- make sure that viewpoint ID numbers on each BCGS mapsheet are unique and not duplicated with a previous viewpoints identified in another inventory theme.

3.4.6 Identify Features For Field Checking

Using information gathered from research and the delineated units, zones or sites on the field map, identify locations on the map which require field verification. This can be done by numbering each field check point or area and describing it in your field (waterproof) notebook.

3.4.7 Review Daily Itinerary

A preliminary daily itinerary for the fieldwork will have been developed in the project work plan (section 3.2.4). Refine this daily itinerary to include the field check points and/or areas identified on the field maps.

The daily itinerary should include:

- staff present
- objective of field trip (e.g. check out beach at south end of glacial lake)
- destination
- access map
- type of transportation used
- approximate fieldtrip arrival/departure time
- approximate travel time
- safety evacuation procedure

3.5 Inventory Fieldwork

3.5.1 Variations in Fieldwork Procedures

There are variations in inventory fieldwork procedures for each recreation resource inventory theme. Refer to each theme section titled: 'Special Considerations for Fieldwork Procedures' for more specific information.

3.5.2 Common Fieldwork Procedures

The inventory procedures common to all recreation resource inventory themes are:

- familiarize yourself with the study area or areas identified as your field check points;
- take photos, slides and/or videotape of attribute information important to the inventory theme;
- identify any anomalies on the field map and record in field notebook;
- refine map units, zones or site locations and assign a data identification number to each;
- complete an inventory checklist or attribute list sheet.

3.5.2 Taking Photographs and Slides

The individual taking photos or slides must have a basic understanding of landscape photography. Refer to appropriate references or take a community course.

Some considerations include:

- take photos or slides from the 'best view' and record the viewpoint ID number on the map (and attribute data on the viewpoints attribute sheet);
- use the same lens for each frame within a group of photos if it will be spliced together for a panorama shot;
- a visual landscape inventory requires a 50 mm lens for landscape shots because it most closely mimics the 'real-life' viewing distance and angles;
- take photos of an entire landform and/or scene, regardless of administrative boundaries;
- if the photos are to be used for visual computer simulations, accurate ground locations are needed. This can be accommodated by using: a global positioning system (GPS), or a compass (horizontal viewing direction) and a clinometer (vertical angle of view);
- record the roll number, photo or photo range in your field notebook (include a brief description of what you are looking at and where from).

3.5.4 Taking Videos

Individuals taking videos should have a basic understanding of shooting landscape videos (e.g. always shooting in one direction). Refer to appropriate references or take a community course.

Document the viewpoint number, what you are 'looking at' and where from' in your field notebook along with the video start/stop numbers (transfer to viewpoints attribute sheet).

3.6 Post-fieldwork Wrap-up

3.6.1 Review and Refine Field Maps and Attribute Sheets

- Review and refine the field maps, checklist and/or attribute sheets. This step takes place back in the office and includes:
- an identification number which is unique to the mapsheet (there are no duplicate ID numbers) for all map units, zones, and sites;
- matching attribute codes between the map and attribute sheets;
- all 'spaces' on the attribute sheets must be filled in (remember to include the leading zeros for numbers); when mistakes are made on the attribute sheets

- each line that is to be discarded in data entry should include the word **'omit'**;
- map units (polygons) and zones (lines) which cross over into another mapsheet should have identical attribute codes;
- all lines crossing mapsheets should be exact (line up adjacent mapsheets along their 'neat' lines to check for anomalies);
- map units, zones or sites, along with their attribute information, should match or be similar to adjacent recreation inventories (e.g. a TSA and TFL inventory will 'match' or compliment one another - regardless of the administrative boundary);
- transfer viewpoint information onto the final maps: symbols, number and range of view (arrows);
- when drawing lines, symbols and attribute codes on the final hard-maps: use a dark marker, with an appropriate tip width, which stands out and doesn't 'bleed' onto the paper maps (tip width will vary with map scale);
- attach appropriate recreation resource inventory legend to each mapsheet.

3.6.2 Submit Initial Maps and Attribute Sheets For Review

It is very important to submit initial maps and attribute sheets for review by the forest district and/or region. This 'quality control' ensures that the individual carrying out the inventory is completing maps and attribute sheets to Forest Service standard. It also provides the forest district/region and timber company with the opportunity to request minor changes and/or add a few things.

(note: initial maps should represent the 'typical' map units, zones or sites).

3.6.3 Develop and Catalogue Photos/Slides and Negatives

Develop photos or slides. The photo specifications for the size and type of finish (matt or gloss) depends on what the final product will be used for.

Catalogue photos and slides by year, roll number, photo ID number/s on the viewpoints attributes sheet. The year number is a 2-digit number (the first two numbers are dropped). The roll number is a 3-digit number ranging from 001 - 999. The photo start/end frame numbers are two digit numbers ranging from 00-99 (e.g. year 95, roll 02, photos 12-17). Write this Unique number on the photo or slidecover (bottom right corner) using a permanent marker.

Mount photos on 8 1/2" X 11", 3-hole punched card stock (or a little lighter) and insert into a 3-ring binder (with title referencing project). Each photo or photo range should have a text summary, with the viewpoint number, what your 'looking at' and 'where from' (include map unit, zone or site numbers on the pictures or in the text).

Slides and negatives are catalogued in archival quality, plastic slide sleeves. Each sleeve should be numbered by the year and roll number. The one or two sentence summary describing the slide could be included as a separate page after each sleeve (Include year/roll number/slide numbers beside each comment). Insert all sleeves and description pages in a 3-ring binder with a title referencing the project.

3.6.4 Review and Edit Videotape

Review and edit the videotape. Cross-reference the viewpoints with the video footage and record on the viewpoints attribute sheet.

Re-do the audio portion of the videotape to include the viewpoint number and comments (e.g. "looking from...at.."). Also write the project number/name and date on the tape itself.

3.6.5 Completing the Recreation Resource Inventory Report

The recreation resource inventory report is an essential part of the inventory. It is a useful reference tool for planners and provides the public with a document on recreation values within their community (e.g. useful for local recreation groups).

The report format consists of:

- report title (include date of completion);
- table of contents;
- introduction;
- overview (1-page) map of study area (with place names, north arrow; and scale bar);
- brief description of the study area;
- methodology (include project specific methods);
- **summary by mapsheet;**
- **summary of recreation or landscape management units;**
- overview (fold-out) map of management units;
- recommendations;
- references; and,
- appendices on the public involvement process (refer to section 3.3).

Most of the above components of the report, such as the table of contents, introduction, methodology and references are part of any standard scientific report format. A reference book on (scientific) report writing can easily be purchased or loaned from a library.

Summary by mapsheet and management unit (**bold text**) are unique to recreation resource inventory reports and will be explained in more detail in the following sections.

3.6.6 Summary by Mapsheet

A summary by mapsheet is a brief description of map units, zones or sites which have significant recreation value and are sensitive to recreation use/resource development (note: recreation value include visual values). It contains the mapsheet number (top of page) and data ID numbers of the units, zones or sites within the body of the summary. Use place and feature names as much as possible (e.g. river, hill, road names).

In brief, a summary by mapsheet describes 'what' recreation values are present 'within' map units (polygons), zones (lines), and sites (points).

The format contains:

- title (bold): mapsheet number and inventory theme;
- map unit, zone or site data ID numbers within the mapsheet;
- corresponding attribute codes for each data ID number;
- brief description of the 'highlights' and/or statement of rationale (e.g. high significance, sensitivity and management class); and
- brief description of current or potential resource use conflicts (use place and feature names as much as possible).

If the inventory information is not scheduled to be updated into the corporate database for awhile, then the inventory report must contain the above summary by mapsheet format.

If, on the other hand, the inventory information is scheduled to be updated into the corporate database within the next few months, the hand-drawn attribute sheets and maps will suffice for this section of the report. The inventory information can be generated once it is digitized/entered into the database.

3.6.7 Summary of Recreation and Landscape Management Units

A summary by recreation or landscape management units is based on the information derived from the recreation inventories. It describes the 'relationship' between map units, zones, and sites and defines the 'administrative boundary' (refer to section 17.0 for further information on management units).

The format includes:

- title (bold): name of management unit and inventory theme;
- management unit number;
- brief description of the area (e.g. topography, activity pattern);

- rationale (explain 'why' the map units, zones or sites should be managed as a group); approximately 1 page-in length.

The management unit numbers should correspond to the numbers on the overview map (include the scale bar, north arrow and legend).

If the inventory information is not scheduled to be updated into the corporate database for awhile, then the inventory report must contain the above summary by mapsheet format.

If, on the other hand, the inventory information is scheduled to be updated into the corporate database within the next few months, the hand-drawn attribute sheets and maps will suffice for this section of the report. The inventory information can be generated once it is digitized/entered into the database.

3.7 Presentation of Results

3.7.1 Target Audience

The target audience is a specific group of individuals to whom the inventory presentation is targeted. Is the target audience:

- Ministry of Forests staff (e.g. used for operational planning)?
- other government ministries and agencies? (technical language may be acceptable)
- recreational groups and associations?
- other interest groups? (unfamiliar with 'recreation' jargon)
- commercial operators?
- stakeholders?
- the general public? (e.g. keep it simple and easy to read, with plenty of photos)
- planning table? (what level of planning is it?)

Each of the above individuals and/or groups have a varied understanding of the subject matter and and expectation of the final product. Before choosing the type and quality of the presentation materials (final report, maps, photos etc.), you must also weigh the following considerations:

- Should the language be technical or simple? (very important!)
- Should the final product be of professional quality (e.g. camera ready art, digitized maps with legend) or operational drafts (hand-drawn maps)?
- Should the products be durable? (if the information stays relatively current for the next five years - durable materials would be preferable)
- How much time is involved in preparation? (do it yourself or contract out)
- How much does it cost?

- What is the benefit?
- Will the target audience be satisfied with the results?

3.7.2 Reports

- There is no 'standard' recreation resource inventory report. Some considerations in producing the report include:
- ease of reproduction (spiral bound or 3-ring binder);
- use 'card stock' for the cover and last page (plastic as well?);
- include a few color photos of significant recreation features or representative features; and,
- 'sleeves' for attribute sheets.

3.7.3 Maps

The map standard will be based on the upcoming cartographic and digitizing standards for recreation resource inventory maps (all themes). These standards will be produced through the Recreation Section.

3.7.4 Slides, Photos & Videos

There are numerous ways of presenting slides, photos, and videos. The type of materials used and the presentation format depends on the target audience. For example:

- public review/open house;
- presentation to a planning committee;
- operational planning; and
- media release.

Archival (clear plastic) sleeves must be used to store slides, photos and negatives. Each slide, photo and negative must be numbered according to the identification number assigned in the viewpoints inventory (section 12.2).

Video-tapes are stored in a protective case and labeled with the project name or number, date and who prepared it.

3.8 Inventory Update

The recreation resource inventory is not a single-effort project but an on-going process (refer to section 18.1). All classification and information in the inventory is kept current. As new information is gathered or as conditions change, the inventory is updated.

4.0 THEME 1: RECREATION FEATURES INVENTORY

4.1 What is a Recreation Features Inventory?

A recreation features inventory identifies and records areas within Provincial Forest which have present and future opportunities for outdoor recreation use.

A features inventory is accomplished by recording (on a map and inventory report) a combination of principal factors:

- the 'biophysical' features/sub-features which have recreational value;
- the feature-related recreation activities;
- the significance and sensitivity of the above features and activities;
- geographic significance of the land unit; and
- the recommended management class.

The difference between a recreation features inventory and a biophysical inventory is that a biophysical inventory is descriptive (records everything present), whereas, a recreation resource inventory records only those features or combinations of features important to recreation. For this reason the features listed in the 'Terrain Classification System For British Columbia' (MELP, 1988) have been adopted to help integrate the recreation resource inventory with other inventory systems.

4.2 Recreation Feature Attributes

The attributes (**bold text**) and descriptions included in this theme are:

4.2.1 Project, Recorder, Keypuncher and Date

Self-explanatory.

4.2.2 BCGS Map Number

Enter the 1:20 000 scale mapsheet number (note: the first number ranges from 0-100, be sure to enter a leading zero for numbers under 100). Also, the letter must always be in the fourth column.

4.2.3 Data Identification (Polygon) Number

Enter a three digit I.D. number ranging from 001 to 999. Be sure to include the leading zero's and do not duplicate land unit (polygon) numbers.

4.2.4 Recreation Management Unit Number

Refer to section 17.0: *Recreation and Visual Landscape Management Units*.

4.2.5 Recreation Features & Sub-Features

The biophysical and cultural features which provide an opportunity for recreation experiences are sub-divided into land units based on the dominant features present. These recreation features and sub-features names are listed in this section with their map codes, but the definitions and photos will be under a separate cover titled: '*Recreation Resource Inventory Features*'

The top three recreation features and sub-features within a recreation land unit polygon) are shown on the map label and recorded in order of importance. There can be up to 8 recreation features/sub-features listed in the database; however, only the top 3 are shown on the map label. The first entry has the highest recreation value or is of greatest recreation importance, and the last has the third highest value or importance.

If the sub-features listed below do not describe what you see in the field, record the feature letter and "00" as the sub-feature (e.g. L00) and explain in the statement of rationale. The miscellaneous feature category should only be used if it does not fall under one of the broad feature categories (note: the leading zeros in the code will not be shown on the map label).

The following is a list of the revised features and sub-features, with the 'link' to the old database (map) codes shown on the right:

New (DRAFT) Biophysical Features Codes	New (DRAFT) Sub-Features Codes	Link to old database Codes
A Aquatic Flora/Fauna	A00 Aquatic Flora/Fauna, general	A2
	A01 Sport Fish	A1
	A02 Aquatic Habitat/Wildlife Diversity	A2
	A03 Aquatic Birds	W1
	A04 Edible Aquatic Foods	A4
	A05 Marine Mammals, Large	W4
B Shore Features	A06 Marine Mammals, Small	W4
	B00 Shore Features, general	B6
	B01 Estuary	J1
	B02 Tidal Marsh	J2
	B03 Tidal Flat	J4
	B04 Lagoon	J3

	B05 Spit or Hook	J6
	B06 Tombolo	J8
	B07 Sand bar	L9
	B08 Headland/Point/Cape	X
	B09 Rock or Sea Arch	R1
	B10 Rock Platform/Ledge	J5
	B11 Delta	L9
	B12 Coastal Plain	X
	B13 Crenulated Shore	R1
	B14 Shore or Sea Cave	X
	B15 Beach, general	B6
	B16 Fine Textured Beach	B1
	B17 Sand Beach	B2
	B18 Pebble Beach	B3
	B19 Cobble Beach	B4
	B20 Rubble Beach	B5
	B21 Pocket Beach	J9
	B22 Raised Beach	B6,J5
	B23 Offshore Feature, general	X
	B24 Islets	X
	B25 Island, small	X
D Hydrologic Features	D00 Hydrologic Features, general	D0
	D01 Junction of Rivers/Streams	D0
	D02 Rapids and Chutes	F3
	D03 Riptides and Currents	D0
	D04 Springs, Thermal	S1
	D05 Springs, Freshwater	S2
	D06 Springs, Mineral	S3
	D07 Water Clarity	D0
	D08 Water Color	D0
	D09 Waterfall, Site-Specific	F1
	D10 Waterfall, Landscape	F2
M Waterbodies	D11 Waves	D0
	M00 Waterbodies, general	X
	M01 Frequent Small Waterbodies	M1
	M02 Lake, Small (0-40 ha)	M2
	M03 Lake, Mid-size (41-200 ha)	M3
	M04 Lake, Large(201-1000 ha)	M3
	M05 Lake, Very Large (> 1000 ha)	M3
	M06 River, Small	M2
	M07 River, Large (double-line @ 1: 50 000 map)	M3
	M08 Cove or Bay	X,M3
M09 Inlet	X,M3	

	M10 Ocean, Open	XMS
	M11 Tarn	M2
	M12 Pro-glacial, Ice-dam or Ice-Marginal Lake	M2,M3
E Vegetation Features	E00 Vegetation Features, general	X
	E01 Alpine/High sub-alpine	E1
	E02 Regenerating Stand	E2
	E03 Coniferous	E3
	E04 Deciduous	E4
	E05 Mixed Coniferous/Deciduous	E5
	E06 Forest Parkland	E6
	E07 Non-Forested	E7
	E08 Wetland Vegetation	E8
	E09 Grassland	E7
	E10 Meadow/Open Space	E7,C3
G Glacial Features	E11 Pastoral/Agricultural	C2
	G00 Glacial Features, general	G1
	G01 Arete	X
	G02 Cirque/Cirque Basin	L4
	G03 Col	X
	G04 Crevasse	G1
	G05 Drumlin	L1
	G06 Deglacial, Channeled by Meltwater	L1
	G07 Glacial River/Stream Deposits	L9
	G08 Glacial Stairway	G1
	G09 Glacial Trough ('U'-shaped Valley)	Q4
	G10 Glacier	G1
	G11 Hanging Valley	X
	G12 Horn/Matterhorn	X
	G13 Ice Fall	G1
	G14 Ice Tunnel	G1
	G15 Icefield or Snowfield	G2
	G16 Kame	X
	G17 Kettles	X
	G18 Moraine or Till (e.g. moraine ridge)	X
	G19 Moulin	X
	G20 Ogive	X
	G21 Roche Moutonnee/Crag and Tail Hills	X
G22 Trimline	X	
G23 Oxbow	X	

J Landform, Surface Material (also see shore/beach & glacial sub-features)	J00 Surface Material, general	X
	J01 Colluvial (gravity caused rock debris; e.g. talus and scree)	L6
	J02 Weathered Bedrock (e.g. blockfield)	X
	J03 Wind-caused or Eolian (e.g. active sand dunes)	X
	J04 River/Stream Deposits (e.g. fluvial gravel bar)	L9
	J05 Organic (e.g. bog, fen, swamp or marsh)	X,M1
	J06 Bedrock, Exposed (subordinate)	R1
	J07 Bedrock Internal Structure (dominant)	R2
	J08 Bedrock Mineral Deposits	R3
	J09 Bedrock, Fossils	R4
	J10 Undifferentiated (more than 3 surface types; e.g. scarp)	X
L Landform, Geological Process (also see shore/beach & glacial sub-features)	J11 Volcanic (e.g. volcanic ash, cinder or rock deposits)	R5
	L00 Geological Process, general	X
	L01 Erosion, general	X
	L02 Erosion, Wind (removal of sand/silt)	X
	L03 Erosion, Karst (e.g. limestone caves and sinkholes)	L5
	L04 Erosion, Piping (underground 'tubes' due to water flow)	X
	L05 Erosion, Gully (narrow ravine; hoodoos; escarpments)	L8
	L06 Erosion, Washing	X
	L07 Fluvial (river or stream), general	M2,M3
	L08 Fluvial, Braided Channel	M2,M3
	L09 Fluvial, Irregularly Sinuous Channel	M2,M3
	L10 Fluvial, Anastamosing Channel	M2,M3
	L11 Fluvial, Meandering Channel	M2,M3
	L12 Mass Movement (e.g. avalanche., landslide), general	L7
	L13 Mass Movement, Snow Avalanche	L7
	L14 Periglacial (non-glacial; cold climate), general	L3
	L15 Volcanic, general	R5
L16 Volcanic, Cinder Cone	R5	
L17 Volcanic, Lava Flow	R5	
Q Landform, Broad	Q00 Broad Landform, general	X
	Q01 Canyon	L8
	Q02 Cone	X

	Q03 Fan	X
	Q04 Fjord	X
	Q05 Gorge	L8
	Q06 Hills	X
	Q07 Hummocky/Rolling/Undulating	X
	Q08 Marine Channel	X
	Q09 Mountain	X
	Q10 Peak(s)	X
	Q11 Plain	X
	Q12 Plateau	X
	Q13 Ridge	X,L4
	Q14 Shorelands	X
	Q15 Sidehill	X
	Q16 Terrace	X
	Q17 Topographic Pattern	Q1,Q2
	Q18 Valley	X
	Q19 Stacks & Cliffs	X
T Trails or Routes	T00 Trails or Routes, general	X
	T01 Developed Land Trails	T2
	T02 Developed Snow Trails	T2
	T03 Land Routes	T1
	T04 Snow Routes	T1
	T05 Water Routes	X
U Harbors	U00 Harbors, general	U0
	U01 Large Harbor	U0
	U02 Protected Moorage	U0
W Wildlife	W00 Wildlife, general	X
	W01 Upland Birds	W1
	W02 Land Mammals, Small	W2
	W03 Land Mammals, Large	W3
	W04 Freshwater Mammals	W4
	W05 Wildlife Diversity	W5
	W06 Amphibians	X
	W07 Reptiles	X
Y Human-made Feature	Y00 Human-made Feature, general	X,H1, P1
C Cultural, Modern (future candidate for a historic site)	C00 Modern Culture, general	X,C-
	C01 Art	X,C-
	C02 Structural Feature	X,C-
	C03 Cultural Use Site	X,C-

H Historic	C04 Cultural Trail or Route	X,H2
	H00 Historic, general	X
	H01 Art	P2
	H02 Structural Feature	H2,C4
	H03 Traditional Use Site	CI,H1,P1,P4
X Miscellaneous Feature	H04 Traditional Use Route or Trail	H3,P3
	Xn Miscellaneous Feature	X

River and trail/route recreation features are included in theme 1 because a detailed river and/or trail inventory may not be completed or there are numerous river and/or trail features which are not captured in the detailed inventory. For example, a braided river channel with numerous tributaries may be a key recreation feature to the land unit. A significance, sensitivity or management class rating assigned to this feature would be cross-referenced with the river recreation inventory of the main channel. The ratings assigned in the detailed river recreation inventory would take precedence over the larger, land unit inventory ratings.

Recreation features could also be used in other themes. For example, they could describe different landscapes on the scenic attractiveness checklist (Viewpoint theme) and the steepness of trail sections (Trails and Routes theme) without assigning a subjective rating for 'level of hiking difficulty'.

4.2.6 Feature-related Recreation Activities

Recording existing and potential activities helps to rationalize the activity attraction capability (refer to section 4.2.12) of the recreation features listed within each land unit. Activities are recorded in descending order of importance (first activity is the most important to the features within the land unit).

Recreation features and the activities which are attracted to them, usually occur within the same land unit. One exception is viewing. The viewpoint (location where a viewing activity occurs) may be 'outside' the land unit. In this case, the activity is not noted in the 'outside', but is noted in the statement of rationale for activity attraction capability of the recreation feature/s.

Activities are classified by type and sub-type. The type or broad activity category would be represented by a letter and the sub-type or sub-activity by a number. Existing activities are indicated by using an upper-case letter (e.g. AO1) and potential activities are identified by a lower case letter (e.g. a01). There are up to **8** activities per polygon that can be listed in the database, but only the top 3 are shown on the map label.

If several sub-activities within the same broad activity category occurs, then you may choose the broad category code (e.g. b00, water sports - general) and include a brief description of 'why' in the statement of rationale. Also, if several existing and potential sub-activities occur within the same broad activity category, record both types.

All activities should be listed in order of importance, regardless of it's a potential activity. A potential activity can be listed before an existing activity if it has greater significance to the land unit. For example, if four-wheel drive use is occurring near a forest wetland which has very high potential opportunity for bird watching and big tree observation, the potential activities may be more important.

The suggested activities and coding are listed below:

Feature-related Activities	Sub-Activities	Link to old database
a Air Sports	a00 Air Sports - General	z
	a01 Bunji Jumping	z
	a02 Hang Gliding	z
	a03 Kite-flying	z
	a04 Paragliding	z
b Water Sports	a05 Sly Diving	z
	b00 Water Sports - General	z
	b01 Boating	b
	b02 Canoeing	c

	b03 Inner-Tubing	z
	b04 Jet Boating	z
	b05 Jet Skiing	f
	b06 Kayaking	d
	b07 Parasailing	z
	b08 Rafting	d
	b09 Sailing	b
	b10 Scuba Diving/Skin Diving	e
	b11 Snorkeling	e
	b12 Surfing	z
	b13 Swimming/Bathing	g
	b14 Water Games	h
	b15 Water-skiing	f
	b16 Wind Surfing	b
d Snow Sports	d00 Snow Sports- General	z
	d01 Cross-Country Skiing	x
	d02 Dog Sledding	z
	d03 Downhill Skiing	x
	d04 Hell-skiing	z
	d05 Lugging	z
	d06 Ski Touring	x
	d07 Sledding/Tubing/Tobogganing	z
	d08 Snow Boarding	z
	d09 Snow Shoeing	w
	d10 Snowmobiling	v
	d11 Cat-skiing	z
e Exploring	e00 Exploring- General	z
	e01 Caving/Spelunking	k
	e02 Canyoning	z
f Fishing	f00 Fishing- General	a
	f01 Bottom Fishing/Jigging	a
	f02 Clamming	r
	f03 Crabbing	a
	f04 Fly Fishing	a
	f05 Ice-Fishing	y
	f06 Shrimping	a
	f07 Spin-Casting	a
	f08 Trolling	a
g Gathering/Collecting	g00 Gathering/Collecting- General	r
	g01 Beach Combing	r
	g02 Berry Picking	r

	g03 Fossil Hunting	r
	g04 Mineral Panning	r
	g05 Mushroom Picking	r
	g06 Rock Hounding	r
h Hunting/Trapping	h00 Hunting/Trapping- General	j
	h01 Game, Large Mammal	j
	h02 Game, Small Mammal	j
	h03 Target Shooting	z
	h04 Upland Birds	j
	h05 Waterfowl	j
k Camping	k00 Camping Activities - General	l
	k01 Beach Activities	h
	k02 Cabin/Hut Use	z
	k03 Cottaging	z
	k04 Picnicking	l
	k05 Summer Camping Activities	l
	k06 Snow/Winter Camping Activities	i
n Nature Activities	n00 Nature Activities - General	n
	n01 Big Tree Observation	n
	n02 Drawing/Painting	n
	n03 Identifying Wildlife	n
	n04 Interpretation	n
	n05 Nature Study	n
	n06 Photography	n
	n07 Relaxation/Contemplation	z
	n08 Solitude	z
q Viewing	q00 Viewing- General	q
	q01 Aquatic	q
	q02 Cultural	p
	q03 Fish Run Observation	A3
	q04 Landscape	p
	q05 Astronomical/Meteorological Observation	p
	q06 Ocean Mammal	q
	q07 Sport	p
	q08 Whale Watching	q
	q09 Wildlife	q
	q10 Bird Watching	q

r Climbing	r00 Climbing-General	m
	r01 Ice Climbing	m
	r02 Mountaineering	m
	r03 Rock Climbing	m
	r04 Ski Mountaineering	m
t Traveling	t00 Traveling-General	z
	t01 ATV	u
	t02 Backpacking	l
	t03 Driving for Pleasure	z
	t04 Flying, Fixed Wing	z
	t05 Flying, Helicopter	z
	t06 Four-wheel Driving	u
	t07 Heli-hiking	z
	t08 Hiking	l
	t09 Horseback Riding	s
	t10 Mountain Biking	t
	t11 Orienteering	o
	t12 Paintball (war games)	z
	t13 Portage	z
t14 Trail-bike Riding	t	
z Other	Zn Other Activities	z

The above outdoor activities are limited to activities which commonly take place within Provincial Forests. Some activities are included to satisfy the needs of other agencies and interest groups. Urban activities, such as soccer and baseball, which commonly occur in areas outside of Provincial Forests, are purposely overlooked.

Recording- and ranking existing recreation activities in the inventory does not represent 'how' they are to be managed, an approval of use or which activity takes precedence over another. These 'management' decisions are carried out through a planning process after the inventory is done.

The two digit sub-activity numeric code which is recorded in the database attribute sheet will not be shown on the map label. For example, 't08' would appear as 't8' on the map label with the leading zero omitted.

4.2.7 Recreation Feature Significance

Recreation feature significance is based on the most important features and associated activities listed within a recreation land unit. It is influenced by three main factors: activity attraction capability, feature scarcity and uniqueness.

'Values help us put our world into perspective. We assign meaning to objects based on our values and those meanings in turn influence our perception of any activity that might affect those objects' (Brunsen, 1992).

Each of the three significance factors are rated from very high to low. The most significant of the three becomes the feature significance rating for the land unit. The coding for each rating is (following page):

<u>code</u>	<u>rating</u>
A	very high
B	high
C	moderate
D	low

The most scarce or unique feature should indicated for feature scarcity and uniqueness. The reason for this is that each may be different from the feature ranking position for the land unit.

4.2.8 Most Scarce Feature

The feature scarcity rating is based on the most scarce feature listed within the land unit - regardless of its 'importance' ranking position. The feature is recorded on the attribute sheet by it's ranking position number: 1-8. (e.g. within polygon 004, the fifth feature is the most scarce - a '5' is recorded on the attribute sheet). If no one feature is scarce, use a "0" to indicate all. If none of the features are scarce, use "-" to indicate none (feature scarcity rating would. be low).

4.2.9 Feature Scarcity

Feature scarcity is a deficiency in number or quantity of a recreation sub-feature compared with the demand. For example, near a small community a pebble/cobble beach, with swampy areas (not particularly attractive) is highly used because there are few 'beaches' within an hour's drive of the town. The actual quality of the beach activities may not be great, but the feature is scarce.

4.2.10 Most Unique Feature

The feature uniqueness rating is based on the most unique feature listed within the land unit - regardless of its 'importance' ranking position. The feature is recorded on the attribute sheet by its ranking position number: 1-8.

If there are no unique features, record a '-' (dash) on the attribute sheet.

4.2.11 Feature Uniqueness

Uniqueness is defined as the state of being without like or equal. First, a comparison of 'like' recreation sub-features is conducted; from that, the unique quality of the recreation sub-feature is determined. For example, there may be many lakes with sand beaches features in an area, but only one of the beaches has a unique shape and has the sun on it the whole day. Another example would be an alpine lake which has an incredible blue-green water color (recreation sub-feature D05: Water Color). There may be several other lakes in the area with an attractive water color, but only one may have an 'unusual or unique' blue-green color.

4.2.12 Activity Attraction Capability

Activity attraction capability is the ability of a combination of recreation features/sub-features to attract recreation use. This combination of sub-features makes up a recreation setting or place.

Recreationists gain satisfaction from participating in recreation activities within a preferred surrounding or setting. The 'setting' is made up of biophysical features, including human-made features. Some features possess characteristics which are very important to the recreation experience and some are just 'part' of the setting (they neither add or detract), and others detract from the setting. For example, a lake may possess an excellent swimming beach and be in a 'natural' ROS setting, but the only access is 'bush-wacking' through 400 meters of dense salal/salmonberry shrubs. Some of the recreation 'features' are ideal, but the activity attraction capability for potential swimming is low because access is too difficult and there is a similar lake in the area with easier access. If there is no similar lake in the area and it would be a benefit to improve access, then the activity attraction capability would be high (this justification would have to be included in the statement of rationale).

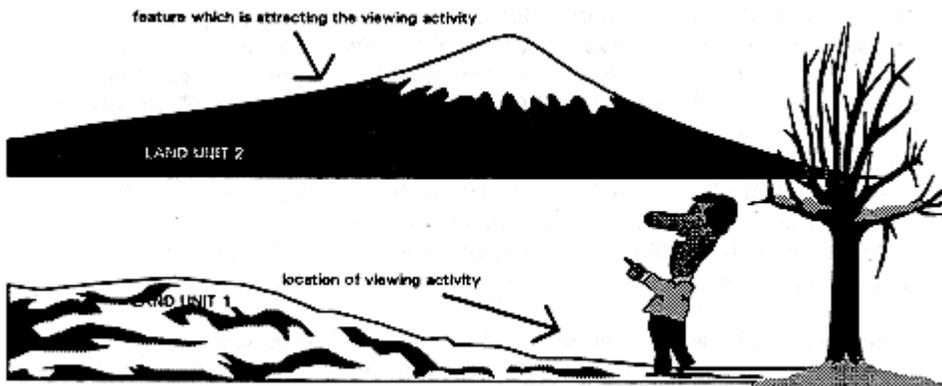
The activities within a recreation 'setting' should be rated in context with other like settings or, in other words, the same ROS class (refer to section 6.1). For example, activities occurring in a Primitive ROS setting should not be compared with activities occurring in a Rural ROS settings - this would be like comparing 'apples with oranges'.

A high number of participants does not necessarily equal a high rating for activity attraction capability. It is the quality of the activity within each ROS setting, not the quantity.

The characteristics of the recreation setting is important in people's decisions to participate, but the types of features preferred changes with the type of activity or activities being contemplated. These preferences are not easily defined.

"...at first glance participants assess outdoor recreation places in terms of activities. However, a more in-depth analysis reveals that recreation places are sensed as a combination of setting, landscape, ritual, routine, people, personal experiences and in the context of other places. A crucial dimension is past experience in certain types of environment which may in turn lead to a sense of belonging to that place. Individuals who expressed 'feeling at-home' in the natural environment strived to escape elements of the city and searched for areas where they could get away from all development. In contrast, the less experienced users noted that they felt lost in the outdoor sites and seemed alienated from the natural environment. They felt comfort in being surrounded by human-built structures such as lodges and concession stands" (Fishwick and Vining, 1992).

Knowledge of current and future recreation use trends, combined with an understanding of the factors which attract people to certain recreation settings, is important in determining the rating for activity attraction capability. This rating is based on the relationship between the features/sub-features and recreation activities found within each land unit.



In some cases, the sub-features which attract recreation use may not always be within the same land unit as the activity (figure 4). For example, when looking out from a viewpoint to a distant mountain, the mountain land unit (2) attracts viewing use, but the actual activity takes place in the land unit where the viewpoint is (land unit 1). The activity is recorded in land unit 1 and the rating for the activity is included in the activity attraction capability for land unit 2 (both are justified in the statement of rationale for each land unit).

A more detailed evaluation may be used to further evaluate the activity attraction capability of a land unit in relation to the overall scene. This is called a scenic attractiveness rating (refer to section 12.3).

4.2.13 Rating Recreation Feature Significance

A recreation feature significance rating is the highest rating given to the land unit based on the three criteria: feature uniqueness, feature scarcity and the activity attraction capability. For example, if feature scarcity is low, feature uniqueness is moderate and activity attraction capability is very high, the recreation feature significance for the land unit would be very high.

This rating is assigned to each recreation land unit to help in resource planning decisions regarding the importance of the recreation values within certain areas of the Provincial Forest. The significance rating indicates 'what' is important, not 'how' it should be managed. Management considerations are discussed in section 4.2.21.

4.2.14 Geographic Significance

Geographic significance represents the importance of the recreation features and/or activities provincially, regionally, locally or to a community. It is based, in part, on the ecoregion classification outlined in the 'Standards for Terrestrial Ecosystems Mapping in British Columbia' (March 7, 1995). Ecoprovinces, ecoregions and ecosystems were chosen because of their usefulness to provincial and regional planning.

*"The ecoregion classification is a hierarchical system stratifying the province into five levels of generalizations. The geographic units defined within each of these levels circumscribe all elevations...An **ecoprovince** is an area with consistent climate or oceanography, relief and plate tectonics. There are nine terrestrial and one maritime ecoprovinces occurring within British Columbia. An **ecoregion** is an area with major physiographic and minor macroclimatic or oceanographic variation. There are 43 ecoregions in British Columbia of which 39 are terrestrial. **Ecosections** are areas with minor physiographic macroclimatic or oceanographic variation. There are 110 ecosections in British Columbia of which 100 are terrestrial. Ecoprovinces, ecoregions, and ecosections are progressively more detailed and narrow in scope and relate the province to other parts of*

North America and the Pacific Ocean, or segments of the province to each other" (Ecosystems Working Group, 1995)

The **provincial significance** is comprised of ecoprovinces or it can represent the B.C. provincial boundary. If the significance rating is not based on an ecoprovince, state otherwise in the statement of rationale.

Regional significance is based on ecoregions. For example, within the Georgia Depression ecoprovince, there are three ecoregions: Eastern Vancouver Island, Lower Mainland, and the Strait of Georgia.

Local significance is based on ecosection. For example, within Eastern Vancouver Island there are two ecosections: Leeward Island Mountains and the Nanaimo Lowlands.

It is common for recreation land units to have no provincial, regional or local significance. However, these areas may be important to a local community, in other words, it has '**community significance**'. For example, a small lake may be heavily used for recreation (e.g. water sports, beach activities) because it is within 15 minutes of town. It is infrequently used by people outside of the community because there are more significant lakes closer to them.

All geographic significance ratings corresponds to the feature significance rating assigned to the recreation features land unit and is heavily based on interviews and/or research of recreation use on provincial forest near small communities, towns and cities.

State the community, town or city name in the statement of rationale.

Choose one from the following six categories of geographic significance and record the code on the checklist and/or attribute sheet:

<u>Geographic Significance</u>	<u>Ecoregion</u>	<u>Map Code</u>
Provincial	Ecoprovince	1
Regional	Ecoregion	2
Local	Ecosection	3
Community	N/A	4
None	N/A	5
Unclassified	N/A	X

4.2.15 Feature Sensitivity

Assigning a recreation feature sensitivity rating to a land unit is an important component of the inventory. It is meant to indicate at a glance, the sensitivity of the recreation biophysical features to recreational use and resource development. This rating is based on the eight most significant features listed in a land unit.

Timber harvesting has been the primary consideration in rating feature sensitivity in the past. However, harvesting is not the only impact on the recreation resource - recreational use should also be considered. In some instances recreational use can also impact the natural environment quite negatively. For example, some caves cannot withstand high recreational use because of the fragile nature of the cave ecosystem.

The feature sensitivity rating is determined by examining which features are the most sensitive and assigning them a sensitivity rating to both recreational use and non-recreational resource development.

4.2.16 Most Sensitive Feature to Recreation Use

Determine which recreation feature or sub-feature listed within the land unit are the most sensitive to recreation use - regardless of their 'importance' ranking position. The feature is recorded on the attribute sheet by its ranking position number: 1-8. If more than one feature is sensitive or a combination of features are sensitive, choose one and explain in the statement of rationale.

If no one feature can be singled out, use a dash (-) to indicate all.

4.2.17 Feature Sensitivity to Recreation Use

Feature sensitivity to recreational use is the ability of a recreation feature to withstand disturbance caused by recreation use (includes 'recreation' development). Although all 8 features are considered in this sensitivity rating, only the most sensitive feature (discussed above) is recorded on the database attribute sheet.

Existing and potential recreation activities are considered.

The recreation use sensitivity rating ranges from high (code: **H**), medium (**M**) to low (**L**). Choose one and record on attribute sheet.

4.2.18 Most Sensitive Feature to Resource Development

Determine which recreation feature or sub-feature listed within the land unit are the most sensitive to resource development - regardless of their 'importance' ranking position. The feature is recorded on the attribute sheet by its ranking position number: 1-8. If more than

one feature is sensitive, or a combination of features are sensitive, choose one arbitrarily and explain in the statement of rationale.

If no one feature can be singled out, use a zero or dash (-) to indicate all.

4.2.19 Feature Sensitivity to Resource Development

Feature sensitivity to resource development is the ability of a recreation feature to withstand disturbance caused by non-recreation resource development (e.g. timber harvesting). All 8 features are again considered in this sensitivity rating, but only the most sensitive feature is recorded.

Hint: if a feature is not as 'important' to the recreation setting or it's partial removal could improve the recreation experience, then the feature could possibly withstand some alteration. For example, while driving along a monotonous backroad corridor ('wall of trees along both sides of road"), the partial removal of the roadside vegetation screening (recreation sub-feature: E03), may open up attractive views which would enhance the 'driving for pleasure' experience. An explanation would have to be provided in the 'statement of rationale'.

The resource development sensitivity rating ranges from high (code: **H**), medium (**M**) to low (**L**). Choose one and record on the attribute sheet. Be sure to describe the rationale and type of development in the statement of rationale.

4.2.20 Rating Feature Sensitivity

The recreation use and resource development ratings are compared, and the most sensitive of the two ratings are shown on the map label as the 'feature sensitivity rating' for the land unit. This sensitivity rating indicates 'what' is sensitive, not 'how' it should be managed. Management considerations are discussed under 'recreation management class'.

Biophysical sensitivity is determined at the inventory stage and social sensitivity is determined through a planning process.

An assessment of social sensitivity may include the following:

- Vulnerability of the cultural/Historic or archaeological resource; and
- Non-use preservation values.

4.2.21 Management Class

Assigning a recommended management class to a land unit is an important phase of the inventory. It is meant to indicate to the planning table whether currently accepted local management practices will or will not provide appropriate protection to the recreational values within the land unit.

The ratings assigned to feature significance, feature sensitivity and scenic attractiveness are used to derive the recommended management class for each recreation land unit.

In some cases, the scenic attractiveness rating may heavily influence the management classification if there is no existing visual landscape inventory. Without a recommended visual quality objective, the visual resource values can only be recognized through a recreation resource inventory.

Six types of management classes are defined:

"0" Recommended. Area is of outstanding recreational, educational or heritage value and is more appropriately managed primarily for the recreation values noted (explain or justify in the statement of rationale).

"1" Recommended. Area requires special management considerations to protect or maintain recreation values noted (explain or justify in the statement of rationale).

"2" Recommended. Current forest management practices are adequate to maintain recreation values.

"3" Approved. An area which will be primarily managed for its outstanding recreational, educational or heritage values (refer to FPC Operational Planning Regulations section 13 and the Forest Practices Standards section 10.1.3).

"4" Approved. Special management considerations must be followed to protect or maintain the recreation values within the area.

"5" Approved. Current forest management practices are adequate to maintain recreation values.

"X" Unclassified. More information is required for evaluation of recreation values within the land unit.

A recommended management class is assigned during the inventory phase, then approved or redefined through a planning process.

Management practices vary by forest type, licensee, biogeoclimatic conditions, and by the sensitivity, attitude and knowledge of members of the local planning team. It is therefore impractical, if not impossible, to give hard-and-fast rules for management classification. Local knowledge and clearly recorded current policies are the basis for assigning management classes.

4.2.22 Recreation Cover Requirement

A recreation cover requirement is a recommended amount of vegetation cover required to remain in a land unit to protect or maintain the recreation resource. This is indicated by a percentage (0 to 100 %). This percentage may be influenced by recreation feature significance, feature sensitivity and/or management class. For example a high feature significance, sensitivity and a management class '0, could result in part or all of the land unit remaining in it's existing state.

Whenever a percentage is applied to a land unit, high recreation values are noted in the inventory and an explanation must be provided (e.g. management class 0, and 1). This explanation describes how the recreation values are being considered or protected in resource development prescriptions.

An approved cover requirement is determined through a planning process - not at the inventory level. It will be an attribute within the database but not shown on the map label.

important note: the final definition of a cover requirement and how it fits into the planning process is still being developed by the FS Recreation Section.

4.2.23 Cultural, Historic and Archaeological Features

Cultural, historic and archaeological features will be indicated by a generic code on the recreation label. This code is: cultural/heritage = **C**; archaeological = **A**; both cultural/heritage and archaeological = **B**. Also, a cultural and/or an archaeological reference number will be documented on the attribute sheet and field checklist.

The reference number used by the Archaeology Branch (SBTC) is a Borden number. A Borden number is a reference system used by Archaeology Branch which is different from the national topographic system of mapping. A sample reference looks like this: DhSm14.

A reference number used by the Heritage Conservation Branch (SBTC) is also recorded.

Non-recreational cultural and archaeological site data/information will be specially managed by the appropriate ministries/branches to protect confidential and/or fragile sites and features. This could include referrals to the appropriate government ministries and native bands set out in a protocol agreement between Heritage Conservation Branch, Archaeology Branch and the Ministry of Forests. The protocol agreement would outline the joint responsibilities for carrying out inventories of cultural, heritage and archaeological resources. Some heritage or archaeological data is currently included in the Forest Service recreation resource inventory.

4.2.24 Statement of Rationale

A statement of rationale is required for all of the following recreation feature attribute types:

- **recreation feature significance:** very high (**A**) high (**B**) or moderate (**C**)
- **sensitivity to recreation use:** high (**H**) or moderate (**M**) feature
- **feature sensitivity to resource development:** high (**H**) or moderate (**M**)
- **recommended management class '0' or '1'**

Specific (recommended) management objectives should be included in the statement of rationale. The specific objectives may be used for a recreation impact assessment at a later date. These measurable objectives help determine if the recreation values within the land unit, zone or site have been protected or maintained.

This rationale needs to be recorded on the attribute sheet and entered in the database when the recreation resource inventory is digitized.

4.3 Recreation Map Label Changes

The original and revised map labels for recreation features are illustrated as follows:

1991 IGDS Map Label for all Recreation Resources	1994 Proposed IGDS Map Label for Recreation Features only
<p style="text-align: center;">13304 02 E3 E1 L5 lnj B1 4</p>	<p style="text-align: center;">304 E3 E1 L5 L2 n5 j4 B M 1 C</p>

The above map labels represent a symbolic coding of the following information:

Recreation Attributes	1991 IGDS Coding	1994 Revised IGDS Coding
land unit number	13304	0304 (4-digit code)
management code	02 (VQG rating)	nil
biophysical feature	E, L	E, L (rivers on separate layer)
sub-feature	3, 1, 5	03, 01, 05 (zero not shown on map labels)
rec. activity	l, n, j	L02, n05, j04 (existing &/or potential)
feature significance	B	B (based on highest rating of three factors)
geographic significance	nil	nil (not shown on map label)
feature sensitivity	nil	M (rated as high, medium or low)
existing ROS class	4	nil (shown on separate ROS layer)
management class	1	01 (recommended)
management code	nil	nil (not shown on label)
Cultural, Heritage, or Archaeological Feature	nil	C

Table 1: 1991/94 Changes to Theme 1 Map Label Attributes

4.4 Special Considerations for Fieldwork Procedures

Refer to the recreation resource fieldwork procedures described in section 3.0.

4.5 Integration With Other Recreation Resource Inventory Themes

The recreation features inventory, theme 1, integrates with other recreation themes in the following ways:

- theme 1 acts as a 'safety net' for themes 2, 3, 4, 5, 7, 9 and 10 if they are not completed;

- it compliments the visual landscape inventory (theme 1 identifies, maintains or protects recreation values and theme 2 identifies and assimilates them into the recommended visual quality objective for the land area);
- important viewpoints identified in theme 1 could be starting points for a visual landscape inventory;
- existing recreation use and the evidence of recreation use are used to determine the existing ROS class in theme 3;
- significant recreation features are incorporated into the educational or interpretive capability inventory (theme 12);
- important river, trail and cave/karst features are ideal candidates for a more detailed inventory (themes 2, 4 - 8 and 10); and
- important river, trail and cave/karst features within a recreation land unit having a recommended management class of "0" or " 1 " default to the management class assigned in the detailed inventory (themes 4-7 and 10); if the detailed inventory is not done, then the management class assigned to theme 1 will be used to maintain or protect the recreation values.

5.0 THEME 2: VISUAL LANDSCAPE INVENTORY

5.1 What is a Visual Landscape Inventory?

British Columbia scenic beauty is a much valued resource. British Columbia's world renowned landscapes are a part of its heritage, a source of everyday enjoyment for its residents and the resource base underlying much of its tourism industry. Visual values, therefore, are one of the most important amenity values that make up British Columbia's Provincial Forest recreation resource.

"In British Columbia, as in many of her western societies, attitudes to the landscape are changing. Fewer people work and earn their living directly from logging, farming or mining. Increasing numbers live in the cities and work in industries or services of a secondary kind. The number of people who accept the utilitarian landscapes produced by, for example, logging decreases as the number who use the forests, lakes and mountains for recreation or vacation increases. This shift changes the overall value placed by society not only on scenic qualities in general but on particular types of landscape such as wild, untouched areas. Naturalness and an absence of human influence are consistently highly regarded, the more so as such areas become more rare.

In British Columbia the economy is still heavily dependent on logging and the timber industry. The challenge facing the Ministry of Forests and the forest industry is how to carry on this industry economically while at the same time ensuring that the range of environmental and social values are maintained. The forest practices code and the newer methodologies such as fatal resource planning are tackling this. The various sets of guidelines in preparation are other contributors.

The kind of aesthetic qualities sought in the forested landscapes of British Columbia will vary. Clearly the characteristics of different landscapes will ensure this in any event. Another factor is the degree to which the landscape is already modified by human activities. Remoter areas tend to be dominated by natural influences while places near farms, ranches or settlements may be more obviously managed to reflect their cultural setting" (MoF Recreation Branch, Visual Landscape Design Training Manual: 1994).

Visual Landscape Management (VLM) is the identification and assessment of visual values, and the consideration of those values in the integrated resource management of Provincial Forests. The primary focus of VLM is the mitigation of visual impacts of human-caused landscape alterations.

A landscape inventory is the first step in the Visual Landscape Management Process. The purpose of this inventory is to identify, classify and record the location and quality of visual resources and values (refer to the current MoF, [Recreation Manual](#), Chapter 11 for an in-depth explanation of the VLM process and definition of terms).

One of the tools used to identify, classify and record visual landscape values is the landscape inventory and analysis checklist. A standard checklist helps to keep things consistent and easier to interpret.

The following descriptions correspond to and help define the factors or attributes outlined on the landscape inventory and analysis checklist (Appendix B):

5.2 Visual Landscape Inventory Attributes

The visual landscape inventory and analysis checklist contains the attributes used to help determine the four important components: visual sensitivity, visual absorption capability, existing visual condition and the recommended visual quality objective. Each component has a list of factors rated from high to low (included non-applicable). The ratings assigned to each factor are not weighted within each component, but rather are evaluated for their contribution to the land unit.

note: the visual landscape attributes are shown in bold text and the numbers to the right, shown in brackets, match the numbers listed on the field checklist.

Forest District

Fill in appropriate Forest District name.

Project Name/Number, Rated by, Date, BCGS Map Number (1-4)

Self -explanatory

VLU BCGS Number (5)

The BCGS visual landscape unit (VLU) number is used to define topographically distinct units as viewed from one or more viewpoints. The polygon (land unit) boundaries and number are within each BCGS mapsheet.

VLU Cross-Mapsheets Number (6)

The visual landscape unit (VLU) number is used to define a topographically distinct unit as viewed from one or more viewpoints. Generally, the VLU may be delineated based on the homogeneity of the landform and of the biophysical elements of a scene. The numbers should be listed in ascending order as one travels along a highway or water corridor or as one travels through a landscape.

Visual landscape units are a cross-mapsheet land unit number. In other words, a new number need not be assigned if a portion of the area falls within another BCGS mapsheet.

VLMU Number (7)

Refer to section 17.0: Recreation and Visual landscape Management Units.

Ecoregion (8)

Using the ecoregions described in section 4.2.14, identify which sub-ecosection is being present.

Viewpoints (9)

List the three (1-3) most significant viewpoints in descending order of importance, with the 'key' viewpoint listed first. The key viewpoint (major, minor, potential or glimpse) provides the best view of the landscape unit being rated. It is the principle viewpoint used to develop landscape inventory ratings for the landscape unit being assessed. Additional viewpoints may be recorded in the comment section (reverse side) of checklist.

Observer Position (10)

Record whether observer is below, level with or above the landscape unit being rated.

Screening (11)

Views of landscapes may be broad and unobstructed, narrow and directional, or filtered by vegetation. While vegetation is the most common screen encountered, cutbanks, rock outcrops and human-made structures may also screen views. Indicate whether the screening is topographic (**T**) or vegetative (**V**) and the type:

Open: View of landscape unit is unobstructed, little or no screening exists.

Partial: View of landscape unit is- partially obscured by screening.

Closed: Little or no view of landscape is possible due to presence of a screen.

Biophysical Factors

Biophysical factors are rated individually for their degree of presence, prominence and variety. This is based on the premise that all landscapes have some value. Those biophysical features that dominate or contain the most variety or diversity have the greatest potential for high scenic value. Not all points identified under each rating need be present in a VLU to develop a rating. In some situations only one factor may be present; in others, several factors may be present.

The following is a list biophysical factors and their criteria for a high to low rating:

Landform Variety and Prominence (12)

HIGH	MODERATE	LOW
a high variety in landform size and shape	a some variety in landform size and shape	a little or no variety in landform size and shape
b high vertical relief	b rolling or inclined terrain	b little or no vertical relief
c severe surface variations or highly eroded formations	c interesting surface variations or eroded formations	c little or no surface variations or eroded formations
d steep slopes (>60%)	d moderate slopes 30-60%	d gentle slope (0-30%)
e detail features dominant and/or striking	e detail features present and interesting but not dominant or exceptional	e detail features few or lacking
f other	f other	f other

Vegetation Continuity or Variety (13)

HIGH	MODERATE	LOW
a vegetation cover broken with diverse patterns, texture and color	a vegetation cover has some variety in patterns, texture and color	a vegetation cover has little or no variety in patterns, textures and color
b strong vegetation continuity providing strong attraction	b some continuity providing moderate attraction	b weak continuity providing minor attractions
c distinct, unique or unusual vegetation species	c some distinctive, unique or unusual vegetation species	c no distinctive, unique or unusual vegetation species
d other	d other	d other

Rock and Soil (14)

HIGH	MODERATE	LOW
a unusual or outstanding features; such as outcrops, talus slopes, avalanche chutes	a rock or soil features present, but not outstanding or dominant	a rock or soil features not apparent
b other	b other	b other

Water (15)

The presence of water often increases the sensitivity of a landscape unit. Water is an important element of the landscape composition because it contributes an interesting variety and contrast to many landscapes. Waterways and waterbodies are extensively used by the public for travel and recreation purposes and forest visitors value the aesthetic qualities of lakes, rivers/streams, and the ocean.

HIGH	MODERATE	LOW
a prominent water features such as open ocean, large lakes or rivers	a water present, but not dominant, such as small lakes, streams, and ponds	a water features not visually apparent
b presence of dominant waterfalls, cascades or rapids	b some variety in waterform or shoreline configuration	b low variety in waterform or shoreline configuration
c water is clear, clean and colorful	c water is not clear or is turbid	c water appears murky or is very turbid
d other	d other	d other

Influence of Edge (16)

Edge is the boundary or interface between landscape units or between biophysical features within a landscape unit. Edge contributes heavily to the visual sensitivity of most landscapes, and alterations along edges will attract attention. Edge can be a sinuous shoreline which our eyes follow as we boat along a coastline or lake or might be the interface where cultural modifications like farmland give way to forest. Types of edge or interface zones include: Water/Landform, Water/Vegetation, Water/Land use, Land use/Landform, Land use/Vegetation, Land use/Land use, Vegetation/Vegetation and skylines (note the type of edge in the comment section of checklist).

HIGH	MODERATE	LOW
a edge is obvious, strong and sensitive to alteration	a edge is less obvious	a edge is weak and indistinct
b edge is a major attraction and the viewers eye spends considerable time following the edge (e.g. shoreline features are complex and striking)	b edge is not a major attraction and the viewer spends a moderate amount of time following the edge (features are not as complex or striking)	b edge is a minor attraction; the eye moves beyond the edge to other features (e.g. shoreline blends or melds into surrounding landscape)
c other	c other	c other

Influence of Adjacent Scenery (17)

Adjacent landscape units may enhance or detract from the overall impression of the landscape unit being rated. Generally only adjacent units up to 5 kilometers are to be considered.

HIGH	MODERATE	LOW
a adjacent scenery has strong influence on the landscape unit being assessed	a adjacent scenery has some influence on landscape unit being assessed	a adjacent scenery has no influence on landscape unit being assessed
b contains positive elements which enhance overall scene (e.g. mountainous backdrop above a lower slope strongly influences the total scene)	b contains elements which somewhat enhances the overall scene	b other
c contains negative elements which detract from the overall scene	c contains elements which somewhat detracts the overall scene	
d other	d other	

Overall Biophysical Feature Rating (18)

It is recognized that, while all biophysical factors contribute to the overall biophysical feature rating, they may not contribute equally as one or more factors may dominate the rating process depending on the particular situation. However, to ensure the overall biophysical features rating is developed consistently across the province, the overall rating will be derived by determining the highest number of circles in one column. If the ratings are equal between two or three classes, choose the highest supportable class or the most restrictive class.

Viewing Distance (19)

Viewing distance affects color-value contrast and consequent level of visible detail in the landscape. The visible landscape may be divided into three general distance zones:

Foreground	Mid-ground	Background
<ul style="list-style-type: none">• 0 to 1.0 km from viewer	<ul style="list-style-type: none">• 1.0 to 5.0 km from view	<ul style="list-style-type: none">• more than 5.0 km from viewer
<ul style="list-style-type: none">• maximum discernment of detail and contrast	<ul style="list-style-type: none">• emergence of overall shapes and patterns, with some texture and color still evident	<ul style="list-style-type: none">• outlines of general shapes and patterns with little discernible texture and color, and strong sense of overall perspective

Viewing Frequency (20)

Landscapes may be viewed from a single viewpoint, from many viewpoints or from no specific viewpoint (e.g. glimpse views from a moving vehicle). A viewpoint is a specific location which offers either brief or sustained opportunities for viewing landscapes. Viewpoints usually represent static viewing opportunities, however, a single point may be used to represent a significant moving view (e.g. a straight stretch along a highway or open view on a ferry route). An area visible from many viewpoints and angles, will generally be more sensitive than an area visible from one or two viewpoints.

Many	Some	None
<ul style="list-style-type: none">• five or more viewpoints	<ul style="list-style-type: none">• three or four viewpoints	<ul style="list-style-type: none">• One or two viewpoints; glimpse views; no specific viewpoint

In the comments section (statement of rationale) list the number of each major, minor or potential viewpoints from which the landscape unit is visible. List viewpoints in descending order of importance.

Key Viewpoint Importance (21)

A key viewpoint is the principle ground location or area from which the "visual landscape unit" is seen. A 'key' viewpoint is a viewpoint from which a landscape unit may be most visually sensitive and from which the final checklist ratings are completed.

HIGH	MODERATE	LOW
<ul style="list-style-type: none">static viewpoints where people stop and congregate such as communities, highway rest areas, park and/or popular campsites	<ul style="list-style-type: none">roadside pullouts or other secondary viewing locations	<ul style="list-style-type: none">viewpoints providing only a fleeting glimpse of the landscape unit

Viewing Duration (22)

Landscapes may be viewed for short periods of time, (e.g. from a moving vehicle) or for longer periods of time, (e.g. from a tourist viewpoint, campground or community).

As the duration of viewing increases beyond a quick glance, the landscape becomes more scrutinized, more familiar and generally more visually sensitive.

HIGH	MODERATE	LOW
<ul style="list-style-type: none">Opportunity exists to travel for a long time towards or view a landscape unit for a sustained period of time, e.g., communities, campgrounds resorts etc.	<ul style="list-style-type: none">Opportunity to view a landscape unit from a static viewpoint of a temporary nature, e.g., highways rest stops.	<ul style="list-style-type: none">Viewing duration of landscape unit is short and for the most part would consist of glimpse views from a moving vehicle.

Viewing Angle and Focus (23)

Landscapes may attract and hold viewers' attention due to the dominance and arrangement of features and the predominant angle from which they are viewed. Dominant features (mountain peak lake, rock outcrop), enframed views, edges and converging patterns are typical areas of focus. Slopes which are aligned perpendicular to sections of a highway are more focal than slopes which parallel a highway, (i.e., tangent). Slopes which face lookouts, campsites, residential areas and other viewpoints are more sensitive than slopes adjacent to or behind these viewpoints.

Focal	Tangent	Peripheral
<ul style="list-style-type: none"> • Landscape unit immediately or directly in front of observer. 	<ul style="list-style-type: none"> • Landscape unit being assessed parallels travel corridor or is at right angles to observer. 	<ul style="list-style-type: none"> • Landscape unit is distant or at edge/ periphery of observers vision.

5.3 Visual Sensitivity Rating/VSR (24)

This rating is a measure of the visual importance of a particular landscape based upon a combination of the previous ratings (numbered 10 - 21 on the checklist: factors considering biophysical characteristics and viewing and viewing-related factors.

Although these factors all contribute to the VSR, they may not contribute equally in all situations. One or more factors may dominate the rating process, depending on the particular situation. For example:

- high variety in landform size and shapes; size and shape dominant
- close-up view of a forested slope; viewing distance is dominant
- view from a popular lookout; lookout importance is dominant
- public or specific interest groups are very concerned about visual quality

Slope Class (25)

Steepness of slope strongly influences visual absorption capability (refer to section 5.4). It affects both perspective scale and vegetation screening effectiveness.

Gentle	Moderate	Steep
<ul style="list-style-type: none"> • less than 30% 	<ul style="list-style-type: none"> • 30 - 60% 	<ul style="list-style-type: none"> • greater than 60%

Vegetation Pattern Diversity (26)

HIGH	MODERATE	LOW
a diverse variations in vegetation patterns	a some variations in vegetation patterns	a uniform, continuous vegetation cover
b numerous natural openings	b few natural openings	b no natural openings in forest canopy
c interesting color, texture and/or species mixes	c some color textures, and/or species mixes	c little or no variation in color texture and/or species
d other	d other	d other

Topographic Variety (27)

HIGH	MODERATE	LOW
a high level of variety in topography, e.g. many hollows, knobs, benches, and breaks in topography	a some variety in topography (e.g. some hollows, knobs, benches, and breaks in the topography)	a little or no variety in topography (e.g. steep, uniform slopes)
b other	b other	b other

Rock or Soil/Vegetation Contrast (28)

HIGH	MODERATE	LOW
a Strong visual contrast between exposed soil/rock and adjacent vegetation.	a Some visual contrast between exposed soil/rock and adjacent vegetation.	a Weak or no visual contrast between exposed soil/rock and adjacent vegetation.
b other	b other	b other

Aspect (29)

Aspect influences the direction at which light strikes a landform and how we see the landscape. When a landscape is back lit (north aspect), the viewer looks into the sun and therefore onto the shady side of landform. This increases the VAC. When a landscape is front lit (south aspect), the sun is behind the viewer and shining straight on to the landscape. This causes color and texture to become dominant, which can decrease the VAC.

HIGH	MODERATE	LOW
• north/northwest/northeast	• due east or due west	• south/southeast/southwest

5.4 Visual Absorption Capability Rating/VAC (30)

Landscapes have varying abilities to absorb human changes due to their physical characteristics. The VAC is a measure of a landscape's ability to absorb alterations without reducing its visual qualities or integrity. The VAC is based on an estimate of physical characteristics, including slope, vegetation-pattern diversity, soil/vegetation color contrast and aspect.

Combine the ratings for 22 - 26 to determine the VAC.

Meets Basic VQO Definition (31)

- Preservation (**P**): No visible activities.
 - Retention(**R**): Activities are not visually evident.
 - Partial Retention(**PR**): Activities are visible but remain visually subordinate.
 - Modification(**M**): Activities are visually dominant, but have natural-appearing characteristics:
 - Maximum Modification(**MM**): Activities are dominant and out of scale, but appear natural in the background.
-
- Excessive Modification(**EM**): Is not a VQO, but it may be used to describe a presently unacceptable visual condition.

Design Quality of Alteration (32)

Note if design is present and how well it has been done.

GOOD	MODERATE	POOR
<ul style="list-style-type: none"> • shape borrows from natural character of landscape, utilizes natural lines of force, boundaries feathered and stratified to reduce contrast 	<ul style="list-style-type: none"> • Some natural character reflected in design, major lines of force recognized some effort to mitigate contrast evident. 	<ul style="list-style-type: none"> • Square or angular in shape, contradicts or breaks natural lines of force causing tension, stark contrasting boundaries.

Design Quality of Roads (33)

GOOD	MODERATE	POOR
<ul style="list-style-type: none"> • a few roads are present and are subordinate to landscape unit; no side-casting, landings or erosion evident 	<ul style="list-style-type: none"> • roads begin to dominate unit, little or no evidence of side-casting or erosion 	<ul style="list-style-type: none"> • roads dominate unit, with evidence of side-casting, may have erosion; high contrast cuts or fills, may contain a distinct 'zigzag' pattern or many parallel roads. • high visual contrast (e.g. color, texture, line) associated

Percent of VLU in Altered, Non-Vegetative State (34)

Circle appropriate box which best describes the percent of unit in perspective view that is altered and in a non-VEG state. Percent alteration in perspective view is determined by

estimating the size of the non VEG (Visually Effective Green-up) disturbed area in relation to visual landscape unit being assessed.

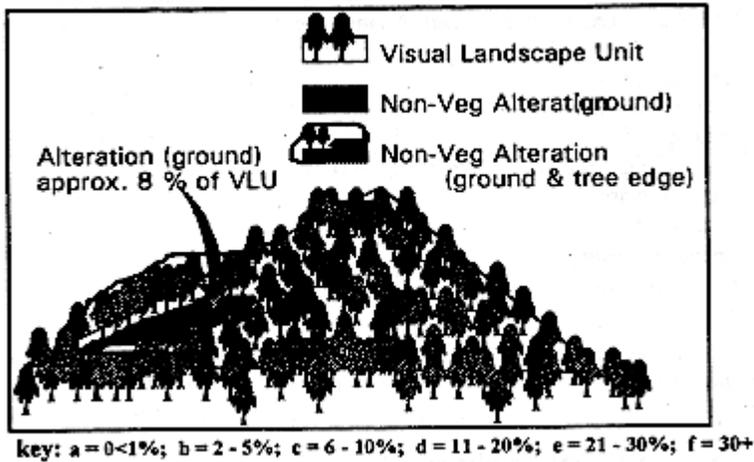


Figure 5: Non-VEG and Percent Alteration

The percent alteration figures presented in figure 5 are not limited to a particular EVC. This information is used as backup information for the EVC chosen. The Recreation Section is currently conducting research to determine what range of perspective percent alterations are appropriate for predicting EVC categories. The results of this research will be incorporated in a revised checklist.

A 'foreground' alteration in perspective view should take into consideration the exposed trees at the back of the clearcut. The full height of these rear trees may be seen as part of the non-VEG disturbed area. This is especially true for foreground alterations, where the ground is not visible and the horizontal break in the tree canopy is very dominant and abrupt. The alteration may have a very negative effect on the viewer, especially if it is combined with a land/water interface.

i. Visually Effective Greenup (VEG)

"VEG is the stage at which regeneration is seen by the public as newly established forest. When VEG is achieved the forest cover generally blocks views of tree stumps, logging debris and bare ground. Distinctions in height, colour, and texture may remain between a cutblock and adjacent forest but the cutblock will no longer be seen as recently cut-over" (Ministry of Forests, 1994).

ii. Type of Alteration

Types of alterations to the landscape are to be listed in descending order of dominance to the landscape unit. Examples of alterations include:

- a aquaculture
- b historic structure
- c mining
- d natural (e.g. previous fires, earth slump)
- e recreation area
- f settlement
- g timber harvesting
- h transportation
- i ?
- j ?
- etc.

5.5 Existing Visual Condition/EVC (35)

Landscapes have varying amounts of visible, human-made alterations, ranging from natural-appearing to heavily modified. These may include not only forestry activities, but also mining, road construction, utility corridor and agricultural activities. Existing Visual Condition is measured using similar terminology to that used to describe VQOs.

The EVC categories are influenced by the amount of alteration present, the quality of design and visually effective greenup. Combine factors 27 - 32 to determine EVC.

In the comments section, identify any other factors which influence EVC such as slope failures, sidecast, landings etc. Include the type of land use which may be present and its influence, positive or negative, on the landscape unit being assessed. Also indicate how close existing alterations are to achieving visually effective greenup by circling the appropriate response on checklist.

VSR (24 - repeat)

Enter the visual sensitivity rating which was determined earlier.

Number of Viewers (36)

Landscapes are viewed by various numbers of people, depending on the location and activities of the viewers. Larger numbers of viewers will generally increase the importance of a landscape; however, there are no exact cutoffs as to what constitutes large numbers vs. low numbers of viewers. Numbers are often based on the type of activities taking place.

HIGH	MODERATE	LOW
<ul style="list-style-type: none"> large numbers of viewers relative to type of activity being pursued (e.g. 5,000 vehicles per day or 500,000 vehicles per year over a given highway) (e.g. 5,000 users per year at a BCFS recreation Site) (e.g. 1,000 kayakers per year) (e.g. 1,000 hikers per year on a given trail) 	<ul style="list-style-type: none"> moderate numbers of viewers relative to the activities being pursued (e.g. 1,000 vehicles per day or 100,000 vehicles per year) (e.g. 1,000 users per year at a BCFS recreation site) (e.g. 200 kayakers per year) (e.g. 200 hikers per year) 	<ul style="list-style-type: none"> low numbers of viewers relative to the type of activity being pursued (e.g. 200 vehicle per day or 20,000 vehicles per year) (e.g. 200 users per year at a BCFS recreation site) (e.g. 50 kayakers per year) (e.g. 50 hikers per year)

Note: The above use figures are presented for comparison purposes only!

Record any user figures collected during the course of completing the visual landscape inventory in the checklist comments section (e.g. The Department of Fisheries and Oceans angler rod day count for Nootka Sound in 1992 was 8,000).

Scenic Attractiveness/SAR (37)

A scenic attractiveness rating is applied to the whole scene (landscape units are combined and rated as a whole). This rating is currently being developed.

Level of Concern/User Expectation (38)

Landscapes are viewed by a wide range of people, often with different values, perceptions and expectations. Some landscapes, such as back country lakes, may be viewed by relatively few people, but are visually sensitive due to the viewer's high expectations for a natural setting. People with a vested interest in, or personal attachment to, a particular landscape (e.g. resident, repeat recreationist) will generally have a higher level of concern for its visual quality than people passing through the same landscape (e.g. highway traveler). People who make their livelihood through forest harvesting may have a different perspective than a tourist in terms of the landscape and its visual quality.

HIGH	MODERATE	LOW
<ul style="list-style-type: none"> viewers have a high concern for visual quality 	<ul style="list-style-type: none"> viewers have a moderate concern for visual quality 	<ul style="list-style-type: none"> viewers have little or no concern for visual quality

Other (non-timber) Amenity Values (39)

Other features and values may contribute to the visual experience of a landscape, and therefore affect its visual quality.

Examples include, features/artifacts which are of visual interest, the presence of wildlife, or special vegetation of interest for viewing.

iii. Types of Amenity Values

List the top 3 amenity values in descending order of importance. The following is an example list of types with a corresponding code:

- a aquaculture
- b fisheries
- c mining
- d recreation, public
- e recreation, commercial
- f settlement
- g transportation
- h wildlife
- i ?
- etc

5.6 Recommended Visual Quality Objective/RVQO (40)

Recommended VQO's (R VQO's) are established to specify limits of acceptable visual change based on visual sensitivity, number of viewers, level of concern /user expectations and other amenity values.

Five levels are used:

Preservation - The preservation VQO requires that no visible change occur in the landscape from forest development practices.

Retention - The retention VQO requires that management activities or alterations not be visually apparent. The goal is to repeat the line, form, color and texture of the characteristic landscape.

Partial Retention - The partial retention VQO requires that alterations remain visually subordinate to the characteristic landscape. Repetition of the line, form, color and texture is important to ensure a blending with the dominant elements.

Modification - The modification VQO allows- alterations to dominate the original characteristic landscape However, alterations must borrow from natural line and form to such an extent and on such a scale that they are comparable to natural occurrences.

Maximum Modification - The maximum modification VQO permits a dominant change to the original landscape, particularly in the foreground and middle-ground.

Alterations may be out of scale or show detail quite different from natural occurrences. In the background, changes should appear to be natural occurrences.

In addition, two short-term visual objectives may be recommended:

Rehabilitation (RH) - landscapes containing undesirable visual impact may be restored by direct action and over time to reach a desired visual quality.

Enhancement (EH) - landscapes containing little visual variety may have their variety and interest increased through the introduction of carefully designed alterations.

SAR Rating From Viewpoints

The scenic attractiveness rating from the primary, secondary, and tertiary viewpoints is recorded. This rating is currently being developed and will be housed in theme 8 (refer to section 1 2.3).

Any data in viewpoints can be accessed to compliment the visual landscape inventory. This data includes: direction and angle of view, photos, videos and a SAR rating.

Approved VQO

Derived from a planning process.

Cover Requirement

(same as the cover requirement described in section 4.2.22).

Comments or Statement of Rationale

A comment or statement of rationale should be given for factors which need further explanation. For example, factor number 14, '*influence of edge factor*', is selected as being '*high*' (H) and *criteria 'c (other)*' is chosen - explain what it is by listing factor **14d** in comment section.

5.7 Screen Inventory

5.7.1 What is a Screens Inventory?

A screens inventory may be included with the visual landscape inventory theme. It would help identify and rank the importance of various types of visual screens along roads, trails, rivers and marine corridors.

Screens are distinguished from visual landscape units (polygons) by line data or zones. These zones, along both sides of the travel corridor, have information attached to them which compliment the factors Used to determine visual quality objectives for visual landscape units.

5.7.2 Screens Attributes

Many of the screen attribute terms are based on the visual landscape inventory attributes. The attributes may include:

Project Number or Name

Same format as visual landscape inventory.

Recorder/Keypuncher; Dates

Same format as visual landscape inventory.

BCGS Map Number

Same format as visual landscape inventory.

Screen Zone ID Number

This is a 4-digit BCGS referenced identification number ranging from 0000 - 9999. There should be no duplicate numbers on the 1:20 000 scale map.

The procedure for identifying each screen zone is similar to procedures for defining a river and trail zone.

Viewpoint Reference Number

<u>viewpoint</u>	<u>code</u>	<u>viewpoint ID Number</u>
primary (key)	1	(00-99)
secondary	2	(00-99)
tertiary	3	(00-99)
unclassified	X	

Presence of Screens

Screens may or may not be present. Regardless, if there is no screen, this information needs to be recorded to maintain a continuous 'string' of zones from project start to finish (if the river/trail zone method is not used, then continuous zones are not needed).

	<u>presence of a screen</u>
Yes	Y
No/None	N

Observer Position

<u>position</u>	<u>code</u>
above	a
level	l
below	b

Screen Type

<u>position</u>	<u>code</u>
open	o
partial	p
closed	c

Vegetative Screen Sub-Types

<u>type</u>	<u>code</u>
topographic (permanent)	t
vegetative, coniferous	c
vegetative, deciduous	d
vegetative, mixed	m
vegetative, shrub	s

Existing Visual Condition

The existing visual condition is based on the attributes described in section 5.5.

Recommended Visual Quality Objective

The recommended visual quality objective (RVQO) is based on section 5.6.

Screen Zone Width

The current and recommended screen zone width is recorded (000-999 meters). The recommended width corresponds to the RVQO.

Screen Zone Importance

The importance of the screen zone to the visual landscape units behind it is rated (**high**, **moderate** or **low** rating). A mention of the specific visual landscape units affected by the removal of the screen may be included in the statement of rationale.

Statement of Rationale

Self -explanatory.

5.8 Map Label

The map label for visual landscape attributes remains unchanged (four quadrant code).

5.9 Special Considerations for Fieldwork Procedures

This section will discuss special considerations in visual landscape and screen inventory fieldwork procedures which are not covered in section 3.0 of this document.

5.9.1 Visual Landscape

Special fieldwork considerations for a visual landscape inventory include:

- conduct the inventory during optimum weather conditions (e.g. landscape units are 90 percent cloud-free);
- using the 1:50 000 basemap, draw in the visible boundary of the study area before delineating visual landscape units;
- transfer current cutblock boundaries onto the basemap (this will help identify the location of distant landforms);
- travel through the study area in both directions and identify potential viewpoints for assessment;
- photographs taken of visual landscape units are used for visual impact assessments and landscape design and should be appropriately formatted (refer to the current '*Photograph Taking and Presentation Standards*' for the Prince George Forest Region);
- use the same means of transportation as the average traveler or visitor;
- visual landscape unit boundaries must follow physical landform features, not alteration boundaries (e.g. timber harvesting alteration boundaries diminish with VEG); and

- the size and slope of a visual landscape unit must be considered when assigning VQO's (e.g. 15% removal of timber from a steep mountainside has a considerable visual impact over a small hill with the same percentage of removal).

5.9.2 Screens

The fieldwork procedure for a screens inventory will be examined once the database attributes are reviewed by the RIWG. The feedback will be incorporated into the final report.

5.10 Integration With Other Recreation Themes

The visual landscape inventory, theme 2, integrates with other recreation themes in the following ways:

- the visual sensitivity rating (VSR) could indicate potentially significant recreation values (refer to statement of rationale in theme 2);
- the existing visual condition (EVC) of visual preservation or retention, combined with an existing Roded Modified ROS class (theme 3j) could be used to determine Roded Natural ROS classes;
- compliments the recreation features (theme 1), river features (theme 5) and trails (theme 7) inventory by maintaining or rehabilitating areas with important visual values (by recommending appropriate VQO's);
- good design quality of alterations/roads and areas with representative degrees of visually effective greenup (VEG3) could be incorporated into the educational or interpretive capability inventory (theme 12);
- viewpoints identified in the visual landscape inventory could be used to identify important recreation features; and
- the information derived from the design quality of alterations/roads and the percent of the visual landscape unit altered could be useful in determining existing ROS classes (theme 3).

The screens inventory integrates with the visual landscape theme in the following ways:

- screens, which are an integral part of the visual landscape units behind them, may require an additional visual landscape assessment if they are removed (e.g. if the screen was removed the EVC and RVQO may change dramatically); and
- the type and width of vegetative screening may influence VQO's (e.g. a thin deciduous screening would reveal everything behind it during the winter and early spring months).

6.0 THEME 3: RECREATION OPPORTUNITY SPECTRUM

6.1 What is a Recreation Opportunity Spectrum Inventory?

The Recreation Opportunity Spectrum (ROS) represents mixes or combinations of settings, and probable experience opportunities which have been arranged along a spectrum or continuum. This ROS continuum is used by the United States Forest Service (USFS) and has been adopted to help formulate the British Columbia Forest Service (BCFS) ROS inventory. Although the concept remains relatively unchanged, the actual definitions and classes of ROS have been modified to reflect the recreation resource needs unique to British Columbia. There are eight B.C. ROS classes: Primitive; Semi-primitive, Non-Motorized; Semi-primitive, Motorized; Natural; Roaded Natural; Roaded Modified; Rural and Urban.

Before the BCFS ROS inventory can be defined, a basic understanding of the USFS ROS concept needs to be achieved. The following excerpts are taken from the USFS ROS Users Guide (1982):

The sense of creativeness, refreshment and pleasure which the recreationist has while recreating or having a good time can be viewed as the recreationist realizing satisfactory experiences. The recreationist attains these satisfactory experiences by participating in preferred recreation activities in preferred surroundings or settings. Therefore although the recreation resource manager manages settings, he or she does so to provide opportunities for recreation experiences and the benefits those experiences produce for individuals and society. Those experiences are influenced by many factors: the settings, the activities, other resources present, activities by managers, and by the values, expectations and other characteristics of the recreationists. These factors interrelate to define outdoor recreationists' needs and the way these needs are met by management action.

Managing for recreation requires different kinds of data and management concepts than does most other activities. While recreation must have a physical base of land or water, the product - recreation experience - is a personal or social phenomenon. Although the management is resource based, the actual recreational activities are a result of people, their perceptions, wants, and behavior.

The word opportunity is defined as a combination of circumstances favorable for a purpose. The purpose or goal of the recreationist, as discussed above, is to realize satisfying experiences. This is done by participating in preferred activities in preferred environmental settings. Thus, recreation opportunity is the availability of a real choice for a user to participate in a preferred activity within a preferred setting, in order to realize those satisfying experiences which are desired.

While the goal of the recreationist is to obtain satisfying experiences, the goal of the recreation resource manager becomes one of providing the opportunities for obtaining these experiences. By managing the natural resource, and the activities that occur within it, the manager is providing the opportunities for recreation experiences to take place. "

The B.C. ROS inventory identifies and defines the ROS classes using six criteria: naturalness, remoteness, social encounters, access and distance from road. These six criteria reflect the types of settings and experience opportunities the recreationist would expect to encounter.

6.2 B.C. ROS Classes

6.2.1 ROS Class Definitions

The definitions for each ROS class are:

Primitive (P): very high degree of remoteness and naturalness; very little or no motorized use within area; 5000 ha or more in size; 8 km or more from a 'rough' dirt or gravel road.

Semi-Primitive Non-Motorized (SPNM): similar to the remoteness and naturalness criteria for a primitive ROS class; very little or no motorized use within area; size is 1000 ha or more; and is 1 km or more from a 'rough' dirt or gravel road.

Semi-Primitive Motorized (SPM): similar to SPNM, except for greater motorized use within the area.

Natural (N): the natural ROS class usually occurs within Roded Natural, Roded Modified or Rural ROS classes. It is characterized by 'small pockets (e.g. area around and including small lakes, coves) or corridors' (e.g. river or trail) predominantly natural-appearing. The existing visual condition (EVC) would be Preservation or Retention in perspective view (refer to the EVC definition within section 5.5). Minor, subordinate alterations such as rustic recreation sites or trails may be present. The size of the area is less than 1000 ha and generally within 1-3 km from a road.

Roded Natural (RN): Roded Natural usually occurs within or near Roded Modified or Semi-Primitive ROS classes. There is a moderate to high degree of naturalness in surrounding environment (as viewed from a travel route). The EVC ranges from Preservation to Partial Retention in perspective view. The area is within 1 km of a 2-wheel drive road and has no size criteria.

Roded Modified (RM): resource land commonly found between Semi-primitive and Rural ROS classes; landscape is dominated by resource extraction and numerous roads (e.g; timber harvesting and dominant human-made structures, such a 'ski hills'). Area is often within 1 km of a 2 or 4-wheel drive road and has no size criteria. In the statement of rationale, indicate the type of alteration and whether it is compatible or not. For example, cabins and docks along a lakeshore may not be out-of-scale or incompatible with the surrounding landscape.

Rural (R): a landscape dominated by human development and settlements associated with agricultural land (e.g. farmland, utility corridors, roadside gas stations); many interactions with other people are expected; recreation facilities may be highly developed and easily accessed.

Urban (U): landscape substantially altered by urban development; highly developed recreation facilities; very high number of recreation users can be expected; highly developed recreational facilities, with intensified motorized use and parking available.

6.2.2 ROS Class Codes

ROS class map symbols and database codes are:

<u>ROS Classes</u>	<u>Map Symbol</u>	<u>Database Code</u>
Primitive	P	1
Semi-primitive, Non-motorized	SPNM	2
Semi-primitive, Motorized	SPM	3
Roaded Natural	RN	4
Natural	N	5
Roaded Modified	RM	6
Rural	R	7
Urban	U	8
Unclassified	X	X

6.2.3 ROS Criteria Definitions

Five criteria are used to determine ROS classes: naturalness, remoteness, social encounters, access and size. Each criteria includes important factors which helps to rate the classes. These are:

<u>Criteria</u>	<u>factors</u>
Naturalness	1. degree of naturalness in the environment; 2. evidence of other people; 3. evidence of restrictions or controls; 4. recreation facility development; 5. site modifications;
Remoteness	6. opportunity to experience solitude, closeness to nature, self-reliance and challenge; 7. sense of remoteness;
Social Encounters	8. interactions with others;
Access	9. party size expected (low = small and high = large size); 10. approximate kilometers from a road (4w = 4-wheel drive); 11. degree of motorized use (off-road) within the area;
Size	12. degree of motorized access to shore; and 13. approximate size of area (ha).

The degree of naturalness in the environment factor considers the absence of pollutants (e.g. a primitive ROS class contains no sight, smell, or sound of pollutants; water in lakes and streams are also fit for human consumption).

Refer to Appendix D, 'ROS and REX Criteria' for more detailed descriptions of the criteria and factors.

An overview of the criteria and rating for the B.C. ROS classes are listed in table 2 (below):

ROS Criteria:	ROS Classes and Ratings:							
	P	SPNM	SPM	N	RN	RM	R	U
Naturalness								
1.	VH	VH	H	H	M-H	M-L	L	VL
2.	VL	VL	L	L-M	L-M	M-H	H	VH
3.	N	VL	L	L	L-M	M-H	H	VH
4.	N	N-L	L	L-M	L-M	M-H	H	VH
5.	N-VL	N-VL	L	L	L-M	M-H	M-H	H-VH
Remoteness								
6.	VH	H	H	M-L	M-L	L-M	L	VL
7.	VH	H	H	M	M	L-M	L	VL
Social Encounters								
8.	VL	L	L-M	L-M	L-M	M-H	H-VH	VH
9.	VL	VL	L	L-H	L-H	M-H	H	VH
Access								
10.	8km 4w road	< 1km 4w road	< 1km 4w road	1-3 km any road	< 1km any road	< 1km any road	< 1km any road	< 1km 2w paved
11.	N-VL	N-VL	L-M	L-M	L-M	M-H	H	VH
12.	N-VL	N-VL	L-M	L-M	L-M	M-H	M-H	H-VH
Size								
13.	5000ha	1000ha	1000ha	<1000ha	none	none	none	none

Criteria Key: (refer to Appendix D)

Rating Key: very high = VH; high = H; moderate = M; low = L; very low = VL; none = N

Table 2: Overview of the ROS Class Rating Scheme

6.4 ROS Attributes

The database attributes for ROS (**bold text**) are as follows:

Project Number or Name

Self-explanatory.

Recorder, Keypuncher, and Date

Self-explanatory.

BCGS Map Number

Enter the 1:20 000 scale mapsheet number (note: the first number ranges from 0-100, be sure to enter a leading zero for numbers under 100).

Data Identification (Polygon) Number

Enter a 4-digit number ranging from 0001 to 9999. Be sure to include the leading zero's.

Existing, Recommended or Approved Status

The ROS theme would include three 'layers' within the database: existing ROS inventory, recommended ROS (planning process) and approved ROS (planning process). The existing ROS classes are mapped at the time the inventory is initiated and represents a 'picture' in time. The recommended ROS is not completed as a part of the initial inventory; it is determined through recreation analysis by the Forest District Resource Officer Recreation, in consultation with ministry staff and other agencies and submitted to a planning table. The planning table would then review the recommended ROS objectives and set approved ROS objectives in a long range plan (e.g. 20 year).

The same attribute sheet is used for existing ROS classes and recommended/approved ROS objectives. The type of ROS class needs to be identified. The codes for each ROS class type are:

<u>ROS Type</u>	<u>Code</u>
Unclassified	X
Existing ROS Class	E
Recommended ROS Objective	R
Approved ROS Objective	A

Recreation Management Unit Number

Recreation Management Units are areas that represent a relatively homogeneous unit from the point of view of recreation opportunities spectrum settings or management objectives. Management units and reference numbers are delineated (usually) AFTER the inventory has been done. If they do not exist at the time of the inventory, no data entry is required. If a management unit exists, record the number on the data attribute sheet. This number is used to establish a 'relationship' between 'like' land units. Reports and maps can be generated on the ROS land units within the Recreation Management Units (Area of Interest).

Season of Use

The primary season of use should be distinguished between summer (no snow) and winter (snow on ground - enough for snowmobile travel). This classification will vary throughout the province.

<u>Season</u>	<u>Code</u>
Summer	S
Winter	W

ROS Class

Record the appropriated ROS class database code on the ROS attribute sheet.

Statement of Rationale

A statement of rationale should be recorded on the attribute sheet and entered in the database when the ROS inventory is digitized.

6.5 ROS Map Label

The ROS map label identifies the land unit or polygon number (e.g. 0014) and the map's symbol abbreviation for ROS classes (e.g. SPNM). For example,

14
SPNM

6.6 Special Considerations for Fieldwork Procedures

This section will discuss special considerations in ROS fieldwork procedures which are not covered in section 3.0 of this document.

6.6.1 Delineating ROS polygons

To begin ROS class delineation review road access, structures and travel patterns throughout the study area (section 3.4.2) and begin drawing preliminary polygon boundaries using the following steps (outlined in figure 6 on following page):

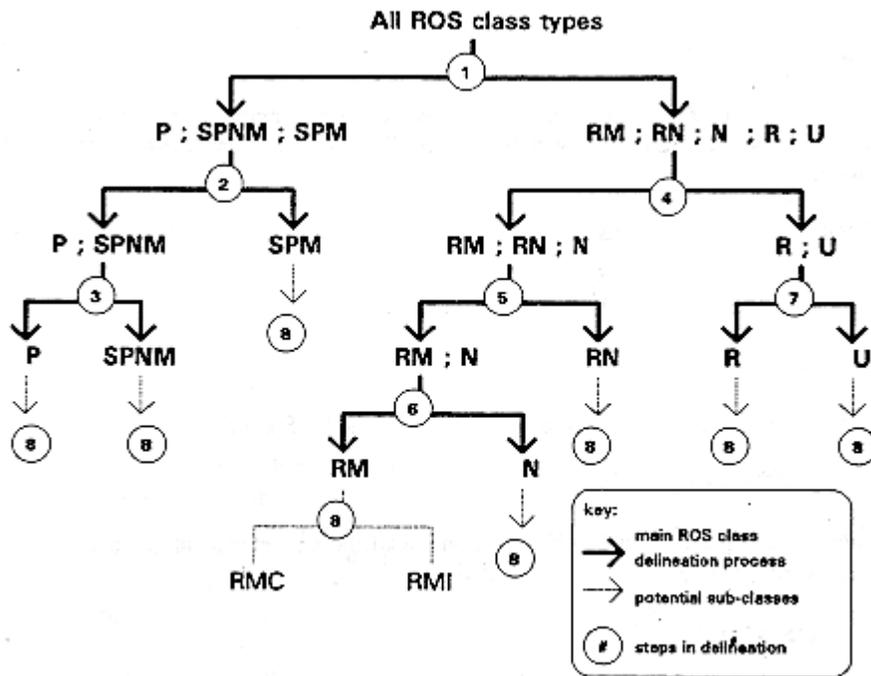


Figure 6: Steps in the ROS Delineation Process

Step (1): On a 1 : 50, 000 scale basemap, separate P, SPNM and SPM from RM, RN, N, R, and U. This is primarily based on the current road map of the study area;

Step (2): Separate SPM from Primitive and SPNM by using the distance from road and size criteria (the remaining criteria are used to refine the boundaries);

Step (3): The area within the Primitive ROS class which is less than or equal to 8 km of the SPM or Roaded Modified class is SPNM;

Step (4): Separate Rural and Urban Bom Roaded Modified, RN and Natural. This is primarily based on the naturalness criteria: areas with modifications due to settlements and agricultural land are distinguished as rural/urban (the remaining criteria are used to refine the boundaries);

Step (5): RN is separated from RM and Natural by identifying the areas within main travel routes (e.g. road and adjacent power lines) that have natural-appearing surroundings (within viewshed); this can also be accomplished

by overlaying the visual landscape inventory and separating out areas with an existing visual condition of visual preservation or retention;

Step (6): Separate Natural from Roaded Modified by identifying significant areas (regardless of size) within the Roaded Modified ROS class which are not on main travel routes and is primarily natural-appearing with a few minor alterations which contribute to the setting (e.g. rustic recreation site and boat launch); delineation of the Natural ROS class involves field verification and/or local knowledge of the area;

Step (7): Separate Urban from Rural by identifying areas within and associated with urban areas - the remaining area is classified as rural (use the remaining criteria to refine the boundaries); there may be some instances where a Natural ROS class falls within a Rural setting - separate these out using the Natural ROS criteria; and

Step (8): Each ROS class described in the inventory can be broken down further into sub-classes to suit various planning needs. For example, Roaded Modified could be broken down to Roaded Modified Compatible (RMC) and Roaded Modified Incompatible (RMI); the difference is the compatibility of the alteration to the area (refer to section 8.2). This is especially helpful in areas where the modification maintains or enhances the recreation experience and no rehabilitation is required (e.g. area surrounding a ski hill); RMC can be separated from RMI by overlaying the visual landscape inventory and identifying areas within RM which have 'good design quality' of the alteration and road (refer to factor 32/33 preceding section 5.5).

Identify areas which require further air photo interpretation and/or field verification. Once the field verification has been done and ROS polygons refined, transfer the map information onto a 'good copy' and record the attribute information on the database attribute sheets.

6.7 Integration With Other Recreation Resource Inventory Themes

The ROS inventory, theme 3, integrates with other recreation themes in the following ways:

- sets the 'stage' for recommended management objectives within other recreation resource inventory themes (e.g. a primitive ROS class objective may require a re-assessment of a management class "2" polygon within theme 1);
- a ROS class objective would influence the choice of potential recreation activities within themes 1, 5, and 7 (e.g. choosing 'jet boating' as a potential activity on a

- lake within theme 1 would not be appropriate within a land area having a primitive ROS class objective);
- influences visual quality objectives with:in theme 2 (a primitive to roaded natural ROS class objective would restrict the amount of alteration to the landscape);
- the ROS inventory does not replace the river experience class imentory, it compliments it (the ROS inventory is defined by land units and the REX inventory by river zones);
- the existing ROS class indicates the type of experience in a tralls inventory (theme 7) and the ROS class objective maintains or rehabilitates the experience;
- ROS class objectives may limit the type of access to caves (theme 10) and consequently, decrease the recreation use;
- provides a range of existing ROS classes for use in the educational or interpretive capability inventory (theme 12);
- ROS class objectives influence the degree of development and materials used in the FS recreation sites inventory (theme 9); and
- ROS class objectives help define the level of acceptable change in a backcountry monitoring inventory.

7.0 RIVER RECREATION INVENTORIES

7.1 What is a River Recreation Inventory?

The river recreation inventory is a detailed extrapolation of the 'river' feature mentioned in the recreation features inventory theme (section 3.0). A river inventory is being done in more detail to recognize the unique recreation values associated with a river corridor.

The Forest Service recreation data attributes for rivers are being integrated with the Fisheries Information Summary System or FISS (currently being developed by Fisheries Branch).

The main themes chosen for river recreation values are recreation features, river experience classes and whitewater. These themes and their common attributes will be discussed in the following section (section 7.2).

The whitewater inventory is based on a few of the possible river activities: kayaking, canoeing and rafting. These particular activities were chosen because more information was needed to help determine their potential occurrence on rivers. The purpose of the whitewater classification is to help determine some of the potential feature-related activities described within the river features inventory.

A visual inventory of rivers is not discussed because the land units, as seen from the river, are already recognized in the visual landscape inventory theme (section 5.0). An inventory of the river viewscape can be carried out using the current MoF visual landscape inventory methodology.

It is important to note that a rivers inventor; may or may not be carried out at the same time as a recreation features inventory and/or a visual landscape inventory. Even if a detailed rivers inventory is not carried out, the river and stream values may still be recognized as part of the overall recreation and visual landscape land units. One or more of the features and activities may be used to recognize the river values (e.g. waterbodies, hydrologic feature, visual sensitivity etc.).

7.2 Common Attribute to Themes 4, 5 & 6

All three river themes have some common database attributes. These attributes are:

Project Number or Name

A project name or number may be assigned the river or stream, which is not the same as the river name. A unique number may be useful, for example, if a river passes through two different 'planning areas'.

Recorder, Keypuncher and Dates

The name and date of the recorder and keypuncher should be indicated in cases where information entered into the database needs clarification.

River Name

The primary river or stream name is assigned by MELP, Fisheries Branch or DFO. Refer to the Stream Atlas for this name (it corresponds to the watershed code).

Watershed Code

The watershed code is identical to the watershed code that the provincial Fisheries Branch (MELP) assigns to each river and stream. This code is unique within the province and is 45 characters long.

BCGS/NTS Map Number

The British Columbia Geographic System (BCGS) maps used are at a scale of 1:20 000. This is the scale commonly used by the Forest Service for operational planning.

The National Topographic System (NTS) maps for rivers mapping is at a scale of 1:50 000 and is the scale used by MELP, Fisheries Branch and DFO.

The rivers inventories will be done using NTS to facilitate integration with the Fisheries Information Summary System or FISS. MELP, Fisheries Branch is developing a GIS system which enables the mapping of individual line segments from the river mouth to headwaters.

Data ID Number

The river zone ID number is assigned to each river zone and ranges from 0 to 9999. These numbers correspond to each NTS (1:50 000) map. The zone numbering sequence begins

at the river mouth and increases as you head upstream (e.g. the zone number near the river mouth would be '0001' and the zone at the headwater would be '0035').

The leading zeros in the data ID number will not be shown on the map label (e.g. '0005' on the attribute sheet would read as '5' on the map).

The river zone ID number and the NTS map number together create a unique identifier for each river zone in the province.

These 'points' may be entered into the database from the UTM coordinates or by digitizing the points onto a base map. The UTM coordinates would be transferred from a database file into the MELP Fisheries database. This integration is necessary because the Forest Service does not have the capability for dynamic segmentation.

Georeferencing data involves digitizing point symbols which have been marked on streams or rivers on hardcopy 1:50 000 scale NTS map sheets. These points are linked to an attribute dataset. The attribute dataset supplies the GIS with the necessary information to process the data. Each point on the river represents one of three ways of relating attribute data to a stream:

- a specific site location;
- the upstream limit of a zone along a stream or lakeshore (via points defining the upstream limit of each zone); and
- the lake or river as a whole (for unreferenced data).

In order to link the mapping points to the attribute data the following fields must be assigned values at the time the points are digitized.

- MAP: a 1:50 000 NTS map sheet number, with a mandatory 6 character ID number (use a zero prefix for maps numbered 1 through 9))
- Data ID number: A point number unique to a 1:50 000 NTS map sheet. This field must always be zero filled to 4 digits (e.g. 0014)

By combining the fields MAP and ID to form a new field called MAPNID each point representing a single theme will be uniquely identified throughout the province.

Enter a 4-digit data identification numbers, beginning with 0001 (be sure to-include the leading zeros).

Data Point Type

Each location on the river represents one of 2 ways of relating attribute data to a river: points and zones.

Points:

- P01** portage start/end site
- P02** access start/end site
- P03** launching site
- P04** gauging station

Zones:

- U01** river zone recreation features; upstream limit of zone (connects the upstream point to the previous upstream point you entered to create a zone)
- W01** recreation features for the whole river (if you would like to describe and rate the entire river, enter this data type point at the headwater)

UTM Coordinates

Only enter the UTM coordinates if the map you finish will not be digitized (the UTM can be easily generated within GIS when digitizing).

The UTM coordinates are recorded for each 'point' along the river if the map information is not being digitized. The information would be recorded into a database (e.g. dbase) and 'overlaid' on or near the river/stream. A software routine could then 'snap' it to the nearest unique invisible line (also called a 'construction line' - which runs up each river). This method could be used to enter the physical coordinates of the river zone or other data types.

Distance from Mouth of River

The distance (km) from the river mouth or between river zones can be generated through GIS - it does not need to be entered during the inventory.

7.3 Special Considerations for Fieldwork Procedures

This section will discuss special considerations for river recreation fieldwork procedures (themes 4, 5 and 6) which are not covered in section 3.0 of this document.

The qualifications for carrying out a river recreation inventory by a recreation inventory specialist is subject to the approval by individual forest districts (e.g. certification and training in swift water rescue).

The pre -fieldwork preparation for a river recreation inventory involves the following:

- contacting local paddling groups, MELP and MoF district staff for information on current river conditions and recreation use (this includes: information on historic and current high, moderate and low water levels; optimum period for recreation use; existing and potential hazards; type of watercraft recommended and access to the river);
- arranging for the use of two vehicles: dropping off a second vehicle at or near the downstream egress point (used to drive back and pick up vehicle parked upstream);
- planning safety procedures which include an evacuation plan from each river being paddled (e.g. minimum of 3 persons, with 2-way radios required);
- purchasing 1:50 000 scale contour basemaps and air photos for each river theme within the study area (store in a waterproof envelope);
- selecting and recording stops along the river for inventory assessments (e.g. eddy's and beaches) and shoot photos using a waterproof camera; securely attach a field notebook (with waterproof paper) to your PFD; and
- sketching out or laminating portions of the river map for use in the field (hint: use 3-4 UTM grids to cover enough of the river between pull-outs).

Refer to Appendix E for an example of a river recreation methodology used for the river -recreation inventory pilot test of the Cowichan, Nanaimo and Chilliwack Rivers.

8.0 THEME 4: RIVER EXPERIENCE CLASS INVENTORY

8.1 What is a River Experience Class Inventory?

The 'river' experience class (REX) rating is similar to the (land) recreation opportunity spectrum (ROS) classes. The difference is that river classes do not have a distance from road/size criteria and have an additional criteria for duration of experience.

The way in which the data is displayed is also different. The land ROS classes are polygon (land area) data and REX is line data (river zones). Each river zone is assigned an experience class. This class describes the river and the surrounding viewscape, as seen while floating down the river corridor.

The database attributes for the river experience class are:

- river experience class
- status of river experience class (existing, recommended or approved)
- statement of rationale/description

Before the REX attributes can be discussed, an understanding of the REX classes and criteria is needed. The criteria used for the experience classification of rivers is based on the land ROS described in section 6.0.

The classifications for river experience are based on the following 5 criteria: *naturalness*, *access*, *remoteness*, *social encounters* and *duration of experience*. These criteria help to delineate the river zones.

8.2 River Experience Classes

8.2.1 REX Definitions

There are seven REX types. The descriptions are:

Primitive River (PR): very high degree of remoteness and naturalness; no visible evidence of modern sites or structures; no motorized access sites; access to river is walk-in or portage; very low interaction with others; river zone is ≥ 16 km and is usually upstream or downstream from a semi-primitive experience class (note: if river zone passes through a primitive 'land' ROS, it influences the criteria of the river classification).

Semi-Primitive River (SPR): similar to the remoteness and naturalness criteria for a primitive river; very few visible modern or historic sites or structures; very low

evidence of restrictions or controls; river zone is >8 km and is usually upstream or downstream from a primitive experience class.

Natural River (NR): natural river usually occurs within or near stretches of a modified river experience class; the environment is dominantly natural-appearing (alterations to landscape equal a Retention VQO in perspective view); few visible modern or historic sites or structures; low to moderate interaction with others; contact with others is expected and occasionally continual, with some chance of isolation; river zone is approximately 1 - 8 km and is upstream or downstream from a modified river experience class.

Modified River, Compatible Alteration (MRC): Similar to the previous modified River experience class (MRI), except that the alteration is dominant and compatible with the surrounding landscape. The landscape may be dominated by cottages, small industrial operations, and numerous roads; timber cutblocks have partial retention to modification existing visual condition (refer to section 5.0); the alteration is compatible with the surrounding landscape and the type of alteration is acceptable (e.g. historic train trestle); area is away from rural settlement areas (in backcountry); low to moderate opportunity to experience solitude, closeness to nature, self-reliance and challenge; river zone varies in length and is upstream or downstream from any experience class.

Modified River, Incompatible Alteration (MRI): landscape may be dominated by resource extraction and numerous roads (e.g. timber harvesting, mining activities, Hydro dams etc.); alteration dominates and is incompatible with surrounding landscape; timber cutblocks would have an EVC of modification or greater; low to moderate opportunity to experience solitude, closeness to nature, self-reliance and challenge; river zone varies in length and is upstream or downstream from any experience class

Rural River (RR): a landscape dominated by 'rural' human development (e.g. settlements, utility corridors, agricultural land); many interactions with others; highly developed recreation facilities on or near shore; low sense of remoteness.

Urban River (UR): landscape substantially altered by urban development; highly developed recreation facilities. very high number of recreation (shore and river) users can be expected; very low sense of remoteness; highly developed recreational facilities, with intensified motorized use and parking available.

The use of motorized watercraft is possible on most rivers and can greatly affect the river experience class. During the inventory of existing conditions, this potential is not recognized. Only current use is examined.

Motorized watercraft use can be restricted or regulated through the use of REX objectives in a recommended REX inventory (refer to section 8.3).

8.2.2 River Experience Class Codes

<u>REX class</u>	<u>map symbol</u>	<u>database code</u>
PrimitiveRiver	PR	1
Semi-Primitive River	SPR	2
Natural River	NR	3
Modified River, Compatible	MRC	4
Modified River, Incompatible	MRI	5
Rural River	RR	6
Urban River	UR	7
Unclassified	X	X

8.2.3 REX Criteria Definitions

Five criteria are used to determine REX types: naturalness, remoteness, social encounters, access and duration of experience. Each criteria includes important factors which helps to rate the classes. These are:

Criteria	Factors
Naturalness	1. degree of naturalness in the environment (a very high rating includes some historic sites or structures); 2. evidence of other people; 3. evidence of restrictions or controls; 4. recreation facility development; 5. site modifications;
Remoteness	6. opportunity to experience solitude, closeness to nature, sel-reliance and challenge; 7. sense of remoteness;
Social Encounters	8. interactions with others;
Access	9. party size expected and boats per group (low= small and high = large size); 10. degree of road access development along river; 11. degree of motorized vehicle access and motorized watercraft use (note: the use of motorized watercraft is possible on most rivers, only the amount of <u>current</u> use is examined in the inventory); 12. visibility of roads from the river; and
Duration of Experience	13. length of river zone (km);

The degree of naturalness in the environment factor considers the absence of pollutants (e.g. a primitive river experience class contains no sight, smell, or sound of pollutants; water in lakes and streams are also fit for human consumption).

Refer to Appendix D, 'ROS and REX Criteria' for more detailed descriptions of the criteria and factors.

An overview of the criteria and rating for the REX types are listed in table 3 (below):

REX Criteria:	REX Types and Ratings:						
	PR	SPR	NR	MRC	MRI	RR	UR
Naturalness							
1.	VH	H	H	M	M	L	VL
2.	N-VL	VL	L-M	M-H	M-H	H	VH
3.	N-VL	VL	L	M-H	M-H	H	VH
4.	N-VL	N-L	L	M-H	M-H	H	VH
5.	N-VL	N-VL	L	M	M-H	M-H	H-VH
Remoteness							
6.	VH	H	L-M	L-M	L-M	L	VL
7.	VH	H	M	L-H	L-M	L	VL
Social Encounters							
8.	VL	L	L-M	M-H	M-H	H-VH	VH
9.	VL	VL-L	L-M	L-H	L-H	H	H-VH
Access							
10.	N	N	N	L-H	M-H	H	H-VH
11.	N	L	L-M	L-H	M-H	H	H-VH
12.	N	N-L	N-L	L-H	M-H	H	H-VH
Duration of Experience							
13.	≥ 16 km	> 8 km	1-8 km	none	none	none	none

Criteria Key: (refer to Appendix D)

Rating Key: very high = VH; high = H; moderate = M; low = L; very low = VL; none = N

Table 3: Overview of the REX Rating Scheme

8.3 River Experience Class Attributes

Refer to section 7.2 for the attribute information common to themes 4, 5, & 6.

Existing, Recommended or Approved Status

The River Experience Class (REX) theme would include three 'layers' within the database: existing inventory, recommended or approved objectives (planning process). The existing REX classes are mapped at the time the inventory is initiated and represents a 'picture' in time. The recommended REX objective is not completed as a part of the initial inventory, it would be determined through recreation analysis by the Forest District Resource Officer

^ the landscape is 'modified', but is acceptable to the viewing public (refer to theme 2).

Recreation, in consultation with ministry staff and other agencies and submitted to a planning table. The planning process would then review the recommended REX objectives and set approved REX objectives in a long-range plan (e.g. 20 year).

The same attribute sheet is used for existing REX classes and recommended/approved REX objectives. The type of REX class should to be identified. The map and attribute codes for the REX status types are:

<u>REX Status Type</u>	<u>Code</u>
Existing REX Class	E
Recommended REX Objective	R
Approved REX Objective	A
Unclassified	X

Statement of Rationale/Description

A statement of rationale or description is given for river zones which may vary slightly from the descriptions given for each REX criteria.

8.4 REX Map Label

The REX map label identifies the zone or zone section (e.g. 0014) and the map symbol abbreviation for REX type (e.g. MRC). For example,

14.....-> zone or zone section ID number
MRC.....-> REX type

8.5 Special Considerations for Fieldwork Procedures

This section will discuss special considerations for REX inventory fieldwork procedures which are not covered in sections 3.0 and 7.3 of this document.

8.5.1 Defining a River Experience Class Zone

Before the river zones can be delineated, a good knowledge of the river and it's surroundings is needed. Run the river and record the location and types of human use, structures and evidence of human use within the viewshed (e.g. railway bridge, primitive boat launch, garbage; cabins, sounds of traffic, timber harvesting activity etc.). Also take photos of representative REX types along the river.

Using the field notes, define the river experience class zone using the following steps (outlined in figure 7; refer to section 8.3 for key to REX codes):

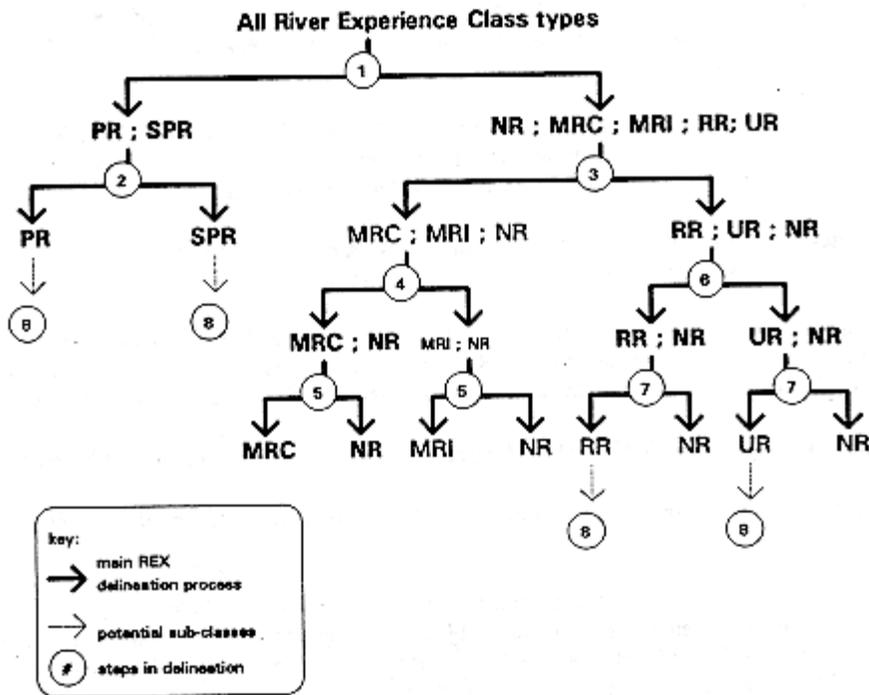


Figure 7: Steps in the REX Delineation Process

Step (1): Using a 1: 50 000 scale basemap, separate PR and SPR from NR, MRC, MRI, RR and UR. This is based on the primarily on duration of experience and naturalness;

Step (2): Separate PR from SPR by using the criteria listed for each class (especially duration of experience);

Step (3): Separate MRC and MRI from RR and UR using the REX criteria and focusing on the type and extent of alterations to the surrounding landscape. NR is not separated out;

Step (4): Separate MRC from MRI using the criteria discussed in section 8.2 and factors 32/33 preceding section 5.5); NR is not separated out;

Step (5): Separate out sections of NR from MRC and MRI by reviewing field notes for significant stretches of natural-appearing areas;

Step (6): Separate RR from VR by identifying areas within and associated with urban areas - the remaining stretches of river are classified as rural; NR is not separated out;

Step (7): Separate out sections of NR from RR and UR by reviewing the field notes for significant stretches of natural-appearing areas (Natural River REX types do not commonly occur within Urban Rivers);

Step (8): Each REX type described in the inventory can be broken down further into sub-classes to suit various planning needs.

Identify zones which require further air photo interpretation and/or field verification Once the field verification has been done and REX zones refined, transfer the map information onto a 'good copy' and record the attribute information on the database attribute sheets.

8.6 Integration With Other Recreation Resource Inventory Themes

The REX inventory, theme 4, integrates with other recreation themes in the following ways:

- the river experience class objective assigned to a river zone directly influences and takes precedence over ROS class objectives assigned to the surrounding ROS land units (ROS land units may need to be refined to reflect the REX objective or the ROS class objective may have to be changed); and
- REX objectives would also influence the types of potential river activities chosen for inclusion in the river features inventory.

9.0 THEME 5: RIVER RECREATION FEATURES

9.1 What is a River Features Inventory?

The river recreation features theme is very similar to the 'land' recreation features theme. The difference is in the 'area' being covered. The river recreation inventory only includes approximately 10 meters on either shore (left and right bank) from high water, and includes the river itself.

The river inventory is made up of 'zones' which are sections of the river delineated by the similarities in recreation features (section 4.2.5) and the setting (section 8.2).

9.2 River Feature Attributes

Refer to section 7.2 for the attribute information common to themes 4, 5, & 6.

Dominant River Pattern

A Dominant River Pattern is assigned to each river zone (this provides information on river character). There may be several 'river patterns' identified through the MELP Fisheries inventory, but only the most dominant is selected. This pattern type provides an 'overall' characteristic of the river zone.

River patterns may be distinguished by a river's fluvial processes (MoE Manual 10, 1988; Philip, 1994). These processes are based primarily on river channel patterns, which provide a broad overview for the interpretation of river characteristics.

Alluvial Braided Channel: a channel zone characterized by many diverging and converging channels separated by unvegetated bars, and temporary islands of gravel and sand. Many channels are dry at moderate and low flows, but during major floods, the entire channel zone may be occupied by flowing water (equal to Fisheries code: AB).

Alluvial Irregular Sinuous Channel: a single, clearly defined main channel displaying irregular turns and bends without repetition of similar features; backchannels may be common; minor side channels, a few bars and islands may also be present but regular and irregular meanders are absent (equal to Fisheries code: AB).

Alluvial Anastomosing Channel: A channel zone where channels diverge and converge around many islands. The islands are vegetated and have surfaces that are relatively far above mean maximum discharge levels. Some channels are dry at moderate or low flows (equal to Fisheries code: AA).

Meandering Channel: A clearly defined channel by a regular and repeated pattern of bends with relatively uniform amplitude and wave length (equal to Fisheries code: AR).

Rock controlled Channel: The bedrock or indurated till controls the slope, directions or flow character of the stream or river. For example, slopes > 20 % may be classified as '5' almost always, so falls and chutes will normally be '5' (equal to Fisheries code: R). Note: indurated till is nonsorted, nonstratified cemented sediment carried or deposited by a glacier- it is almost as solid as bedrock.

Misc.- Lake: The river or stream 'zones' must be continuous from the mouth to the headwaters. Rivers that 'pass' through a lake should be classified as a lake. This category is used by MELP, Fisheries to connect a river headwater to it's mouth, regardless of whether a lake is in-between. Refer to the watershed codes for rivers that pass through lakes and those that do not.

The codes for dominant channel pattern are:

<u>Dominant Channel Pattern</u>	<u>MELP Fisheries Code</u>	<u>Attribute Code</u>
Alluvial, Braided Channel	AB	1
Alluvial, Irregular Sinuous Channel	AI	2
Alluvial, Anastamosing Channel	AA	3
Meandering Channel	AR	4
Rock Controlled Channel	R	5
Misc - Lake	L	6
Unclassified	X	X

Recreation Features and Activities

The recreation (shore) features and feature-related activities for rivers and streams follow the same feature/sub-feature coding/definitions as the recreation features (refer to recreation features and activities in sections 4.2.5 and 4.2.6).

Mode of Travel to River (for each zone)

<u>TYPE</u>	<u>ATTRIBUTE CODE</u>
2-wheel drive vehicle (car or truck)	1
4-wheel drive vehicle (car or truck)	2
ATV	3
mountain bike	4
trail bike./motorbike	5

horseback	6
walk-in	7
helicopter/fixed wing	8
snowmobile	9
watercraft	10
unclassified (or N/A)	X

Access Distance from Road (km)

Record, if applicable, the approximate access distance in kilometers from the nearest road access to the river zone.

Boat Launch Types

Boat launch types are identified in the database by changing the data type from 'upstream zone limit' to **P03** (refer to section 7.2) and identifying one of the following types:

<u>TYPE</u>	<u>ATTRIBUTE CODE</u>
non-motorized water craft (non-trailer)	x
motorized water craft (non-trailer)	y
trailer water craft	z
N/A	n

Only the most developed launching capability type will be listed on the map label and attribute sheet. If more than one is present within a river zone, state accordingly in the comment section of the data attribute sheet.

Feature Significance, Geographic Significance, Feature Sensitivity, Management Class and the Statement of Rationale

The attributes associated with feature significance, geographic significance, feature sensitivity, recommended management class, statement of rationale are also defined in theme 1 (section 4.2).

Important note: river recreation features are different from 'land' recreation features (described in theme 1, section 4.2) in that they are limited to the immediate shore and the feature significance is rated against other rivers.

Access and egress sites contribute greatly to the feature significance rating of a river zone. If they are removed or restricted, it can greatly decrease the activity attraction capability (refer to section 4.2.12). Changes to access and its implications should be noted in the statement of rationale, along with a management recommendation.

9.3 River Feature Map Label

Same format as the recreation features map label for theme 1 (section 4.3).

9.4 Special Considerations for Fieldwork Procedures

This section will discuss special considerations for river features inventory fieldwork procedures which are not covered in sections 3.0 and 7.3 of this document.

9.4.1 Defining a River Features Zone

A river feature zone is defined by the similarities in biophysical and human-made features. Changes in vegetation type, surficial geology (e.g. beaches and canyons) slope, and cottages are all considered when defining a distinct section of the river.

Recreation activities or fish distribution should not be used to define the river zone.

9.4.2 Potential Recreation Activities

Determining potential recreation activities on or along the river includes the following considerations:

- dominant and range of whitewater classes (refer to section 10.0);
- shore type (e.g. beach or rock cliff);
- ease of access and egress from the river;
- difficulty level and time required to portage around difficult waterways;
- 'continuous' paddling opportunities for the novice, intermediate or advanced paddler;
- significant recreation features (e.g. 'pot-holes' or a waterfall from an adjacent stream);
- suitability of activity or activities within each ROS setting (refer to section 6.0);
- water quality (is it suitable for human consumption);
- potential for picnicking or camping; and
- distance and ease of travel from various communities.

9.5 Integration With Other Recreation Resource Inventory Themes

The river features inventory, theme 5, integrates with other recreation themes in the following ways:

- provides more detailed inventory information on the river recreation features indicated in the (broad) recreation features inventory in theme 1;

- attributes 4.2.5 to 4.2.21 from theme 1 are used in the river features inventory (the emphasis is on the river corridor and the comparison between like rivers for feature significance); and
- identifies important viewpoints along the river corridor, which could be used as a starting point for a visual landscape inventory.(theme 2).

10.0 THEME 6: WHITEWATER CLASSIFICATION INVENTORY

10.1 What is a Whitewater Classification Inventory?

A whitewater classification inventory is an inventory of whitewater classes on a river. It provides the recreation inventory specialist with valuable information on potential recreation activities on the river. These activities, especially paddling, are included and recognized in the river features inventory (refer to sections 4.2.12 and 9.0).

Classifying whitewater for potential paddling activities requires several considerations:

"The difficulty of rapids will determine the types of watercraft which can be used and the approximate experience levels required of river users. It is also important to identify obstructions along a river (e.g. waterfalls, log jams, weirs) which present a hazard to user safety and reduce recreation potential... another important factor in ascertaining river navigability is the change in difficulty which occurs with variations in waterflow levels. Many rapids become easier to navigate at high water, while others become extremely difficult and dangerous... at low water level, similarly, a wide range of possible conditions may occur. The variations are dependant upon the feature or features which create the rapids (abrupt changes in the channel bed gradient, obstructions in the channel bed walls, changes in channel width, bends in the river channel). All rapids, therefore, should be classified at high, medium and low water levels" (Hooper, 1977).

It would be ideal to classify whitewater for high, moderate and low water levels, but it is not feasible to accommodate ever changing conditions of the rivers. River conditions, especially whitewater, can change dramatically from year to year and season to season (e.g. log jams, earth slumps, unusually high seasonal rainfall).

For this reason, the river is classified at the optimum water level for recreation use. The actual water flows for this period can be derived from the Historic Stream flow Summary for the river enabling a comparison for other time of the year. Notes on known changes in classification at different water levels can be included in the description/statement of rationale for each river zone.

This inventory:

- classifies whitewater based on the International Whitewater Classification;
- uses the optimum water level for classifying whitewater;
- includes additional classifications to reflect all river conditions;
- identifies the optimal period/s of use for paddling (in months);

- uses the 'average' or medium monthly water flows for comparing the rated classification with other times of the year (based on the Historic Streamflow Summary);
- identifies the dominant whitewater class for each river zone (section of river);
- identifies the range of whitewater classes within each river zone;
- records river conditions at the time the inventory was done for each river zone (statement of rationale); and
- recommends the type and skill level of paddling activities which could occur on the river under ideal conditions (statement of rationale).

Again, the whitewater classifications identified in this inventory are for planning purposes only. It is not meant to be a recreation 'user's guide' for navigation on any river.

10.2 Whitewater Classes

The whitewater classification used in this inventory is based on the International Whitewater Classification System (American Whitewater Affiliation, 1990). This system is based primarily on kayaking.

Kayaking

Class I: Easy . Fast moving water with riffles and small waves. Few obstructions, all obvious and easily missed with little training. Risk to swimmers is slight; self-rescue is easy.

Class II: Novice. Straightforward rapids with wide, clear channels which are evident without scouting. Occasional maneuvering may be required, but rocks and medium sized waves are easily missed by trained paddlers. Swimmers are seldom injured and group assistance, while helpful, is seldom needed.

Class III: Intermediate. Rapids with moderate, irregular waves which may be difficult to avoid and which can swamp an open canoe. Complex maneuvers in fast current and good boat control in tight passages or around ledges are often required; large waves and strainers may be present but are easily avoided. Strong eddies and powerful current effects can be found, particularly on large-volume rivers. Scouting is advisable for inexperienced parties. Injuries while swimming are rare; self-rescue is usually easy but group assistance may be required to avoid long swims.

Class IV: Advanced. Intense, powerful but predictable rapids requiring precise boat handling in turbulent water. Depending on the character of the river, which may feature large, unavoidable waves and holes or constricted passages demanding fast maneuvers under pressure. A fast, reliable eddy turn may be needed to initiate maneuvers, scout rapids, or rest. Rapids may

require 'must' moves above dangerous hazards. Scouting is necessary the first time down. Risk of injury to swimmers is moderate to high, and water conditions may make self-rescue difficult. Group assistance for rescue is often essential but requires practice and skill. A strong Eskimo roll is highly recommended.

Class V: Expert). Extremely long, obstructed, or very violent rapids which expose a paddler to the above average endangerment. Drops may contain, large, unavoidable waves and holes or steep congested chutes with complex, demanding routes. Rapids may continue for long distances between pools, demanding a high level of fitness. What eddies exist may be small, turbulent, or difficult to reach. At the high end of the scale, several of these factors may be combined. Scouting is mandatory but often difficult. Swims are dangerous, and rescue is difficult even for experts. A very reliable Eskimo roll, proper equipment, extensive experience, and practiced rescue skills are essential for survival.

Class VI Extreme. One grade more difficult than Class V. These runs often exemplify the extremes of difficulty, unpredictability and danger. The consequences of errors are very severe and rescue may be impossible. For teams of experts only, at favorable water levels, after close personal inspection and taking all precautions. This class does not represent drops thought to be unrunnable, but may include rapids which are only occasionally run.

Three additional classifications are included in the above list to reflect all water conditions along the river. They are not part of the International Whitewater Classification, but are included to reflect all conditions on the river or inventory status. These classifications are: flatwater, unrunnable and unclassified.

Class 'F': Flatwater. Stationary or slow-moving water with no riffles or waves. Few obstructions, all obvious and easily missed with little training. Risk to swimmers is slight; self-rescue is easy.

Class 'U': Unclassified. No inventory information available.

Class 'N': Unrunnable. Beyond class VI - this class represents drops thought to be unrunnable (e.g. dams or very high waterfalls).

The whitewater skill level for canoeing and rafting is not the same as the 'kayaking' skill levels. This difference should be taken into account when determining the potential for (non-kayaking) activities.

According to Pratt-Johnson, the suggested skill level criteria for open canoeing and rafting includes:

Open canoeing

Novice: Has successfully paddled calm lakes, but is inexperienced on moving water.

Intermediate: Experienced on Class I moving water and can handle class II.

Expert: Can maneuver on Class III water, and can sometimes successfully run Class 4.

Rafting

Novice: Can handle Class II water.

Intermediate: Can maneuver under full control in Class III .

Expert: Can maneuver under control in Class IV water, and can possibly handle Class V.

She also states that whitewater classifications are merely an indication of actual river conditions. Some river conditions may increase the whitewater classification suddenly. These include: regional differences in conditions; long travel time to nearest road; cold water; glacial water; and logs. Logs can appear on any river in B.C. and are one of the most dangerous hazards on waterways (especially on very narrow rivers and creeks). Consequently, these 'extra' hazards would increase the whitewater classification in some cases (e.g. a Class II with cold water and/or logs would be bumped up to a Class III).

10.3 Whitewater Class Codes

Whitewater Classification Codes:

<u>whitewater classification/map code</u>	<u>attribute code</u>
Class I	1
Class II	2
Class III	3
Class IV	4
Class V	5
Class VI	6
Class F	7
Class U	8
Class N	9

10.4 Whitewater Classification Attributes

Refer to section 7.2 for common attributes to themes 4, 5, & 6 (they are included here).

Optimal Period of Use

The optimal period of use, 'range 1', would correspond to the dominant whitewater class chosen for each river zone. For example, if paddling on the Cowichan River is 'the best' between October and January, then the optimal period of use, 'range 1 start/end', would be 10 - 01 (even though 'paddling' can occur year-round along certain stretches). This information is based on interviews with local paddling groups and recognized recreation publications.

The period of use may not be continuous. The best paddling may occur at two separate times of the year. For this reason there is a range 1 and 2. Range 1 represents the first choice and range 2 is the second.

The data entry coding for each month is equivalent to the numeric coding 01-12 for January to December [e.g. range 1 is **03 - 06** March to June) and range 2 is **09 - 01** (September to January)].

Gauging Stations

Gauging stations are a location where systematic records of water stage and discharge are obtained. These stations provide hydrometric data on monthly and annual mean discharges and annual extremes of discharge from rivers within British Columbia for which stream flow data to 1990 inclusive has been collected by the Water Survey of Canada.

The data type for site-specific gauging stations is 'P04' (refer to section 7.2). This code, along with a 7-digit reference number, identifies this attribute. The reference number corresponds to the ID number assigned to stations within the Historical Stream flow Summary: British Columbia (1990).

This data will not be collected during the inventory, but rather will be entered directly into the database.

Monthly Mean Discharge

The monthly mean discharge is information attached to the gauging station data type mentioned above. The water 'discharge' is measured as a percentage (000-100%) of the volume (m^3 /second). This percentage is derived by adding the mean monthly flows for the 30-year average and dividing each month by that total. For example, the 30-year mean monthly flow for the Chilliwack River for January was 55.2 cubic meters/second (m^3/s) and the total annual mean discharge was 801 m^3/s . The monthly Bow percentage is

approximately 7%. The percentages for each month may be plotted as a graph to show relative monthly flows.

This data will not be collected during the inventory, but rather will be entered directly into the database from MELP: Water Management.

Dominant Whitewater Class

In 1987, a method of evaluating the recreational potential of Alaskan Rivers was completed for the Wildlife Federation of Alaska. In this methodology, a criteria for 'boating and floating' was defined. Boating represented motorized use and floating included canoeing, kayaking and rafting.

"In interviewing boating/floating enthusiasts, it became clear that consistency of the river is a primary consideration in choosing a recreation site. Persons who are interested in an easy family outing select the rivers which are fairly consistent flatwater and which do not have serious hazards such as boulders, rapids, falls, etc. Those who are seeking a whitewater experience choose rivers which will give them a lengthy stretch of water at the class level they desire with little or no flatwater or insurmountable hazards. Boating/floating quality, therefore, is based on the consistency of the wafer class and the presence or absence of hazards". (Rue, Hemming, and McGuinness, 1987)

The above methodology was used to formulate a 'dominant' whitewater class. A dominant whitewater class indicates the most commonly occurring whitewater class within the length of a river zone.

This dominant whitewater information would help to determine the potential for other activities besides whitewater paddling. For example, a dominant Class F with a sand beach and easy access may have a significant potential for angling and swimming. Another scenario is a dominant Class III river zone with no beach; these conditions would be optimal for kayaking or rafting.

Range of Whitewater Classes

The 'range' of whitewater classes within a river zone would provide a 'picture in time' of the current river conditions. The range would show the lowest to highest classes. For example, F - III: The lowest class is flatwater and the highest is class 3. This information, along with the length of the zone, would help to determine potential river and shore activities (within the river features theme).

Important: both the dominant and range of whitewater classes correspond to the most significant period of use: range 1 .

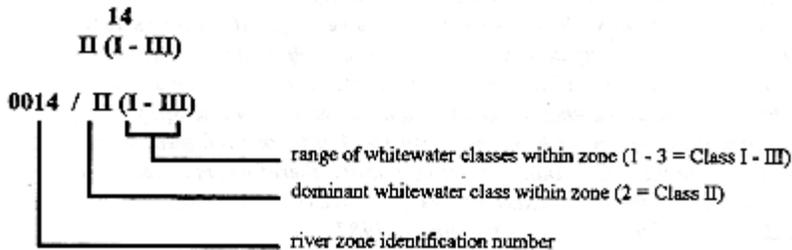
Description or Statement of Rationale

Include a description or statement of rationale for each river zone that would be suited for a potential activity or activities. Also include the approximate skill level for each paddling activity.

important note: the whitewater classification is still being developed and some of the above attributes may be subject to change or omission. They also need to be reviewed by Outdoor Recreation Council and Canoe Sport B. C.

10.5 Whitewater Classification Map Label

The map label coding is based on the above attributes assigned to each river zone. For example:



10.6 Special Considerations for Fieldwork Procedures

This section will discuss special considerations for whitewater classification fieldwork procedures which are not covered in sections 3.0 and 7.3 of this document.

A river is always scouted* before paddling, regardless of the whitewater classification from the year before.

10.6.1 Defining a whitewater classification Zone

The river experience class zone is based on the water level and river conditions at the optimum period of use (period 1).

10.7 Integration With Other Recreation Resource Inventory Themes

The whitewater classification inventory, theme 6, integrates with other recreation themes in the following ways:

*scouting a river means that river sections around blind corners or drops are assessed from the shore before paddling is attempted.

- provides information on potential paddling activities for inclusion in the river features inventory (theme 6);
- in absence of a river features inventory, the potential activities are noted in the recreation features inventory (theme 1); and
- provides information in the statement of rationale which would enhance the experience of the novice, intermediate or advanced paddler (e.g. class "I" is the dominant whitewater and the range is "F" to "I" - ideal conditions for the novice kayaker).

11.0 THEME 7: RECREATION TRAILS & ROUTES INVENTORY

11.1 What is a Recreation Trails & Routes Inventory?

The database setup for trails and routes is the same as rivers: zones. These trail zones would include important recreation features approximately 10 meters on either side of the trail (including the trail itself).

'Routes' can be on land or water. The water routes usually represent the simplest and/or most popular path to the recreation destination (could be a 'loop': return to origin).

It is important to note that a trails inventory may not be possible for all areas within a forest district. In absence of this detailed information, the 'trail and route' recreation sub-features listed in the recreation 'features' theme can be used to recognize these recreation values (it could be recognized as one of the 8 features listed within the land unit).

11.2 Recreation Trails & Routes Attributes

The recreation trails and routes inventory would include the following attributes:

- *project number or name*
- *recorder/keypuncher, dates*
- **trail name**
- **trail profile reference number** (linked to graph image)
- *BCGS map number*
- *NTS map number*
- *data ID number*
- **data type (e.g. uphill point or trailhead)**
- *UTM zone; easting; northing*
- *recreation features*
- *recreation activities*
- **trail access distance from road**
- *most scarce feature*
- *feature scarcity*
- *most unique feature*
- *feature uniqueness*
- *activity attraction capability*
- **feature significance**
- *geographic significance*
- *most sensitive feature to recreation use*
- *feature sensitivity to recreation use*
- *most sensitive feature to resource development*
- *feature sensitivity for resource development*

- management class: recommended or approved
- statement of rationale/description

Trail attributes listed in *italic* have the same definitions as those described in the recreation features and river recreation features themes. **Bold** text represents attributes unique to the trails inventory and will be described as follows:

Trail Data Types

The data types for trails include:

Zones:

- W02** trailhead (the 'zone' includes the entire trail; linked to trail profile)
U02 trail zone (recreation features)

Points:

- P06** access/exit points to trail (there could be other trails or routes which intersect the main trail)
P07 existing or potential camping sites

Trail Name

The trail name is based on the name currently assigned by the Forest Service or given a new name (e.g. based on 'local' name or name given in a publication).

Trail Profile Reference Number

The trail profile reference number would 'link' the planimetric trail to a topographic profile of the trail which shows distance versus elevation gain. This trail profile could be generated automatically for any trail digitized on a TRIM map. This visual image would be helpful in determining the 'level of difficulty' - regardless of experience level of the hiker.

The trail profile reference number is linked to the trailhead data type.

Trail Access Distance from Road

Record the approximate trail access distance from the nearest road in kilometers. This applies to each trail 'zone' if applicable.

Feature Significance

The feature significance of a trail zone is based on the trail itself and approximately 10 meters on either side of the trail. The trail section being rated is compared to other trails.

11.3 Trails & Routes Map Label

Same map label as theme 1: recreation features.

11.4 Special Considerations for Fieldwork Procedures

The general fieldwork procedure for inventorying trails is discussed in section 3.0. A trails inventory is very similar to a river features inventory.

Special fieldwork considerations include:

- choose the best access route to the trailhead and consider the travel time within the study area (may require overnight gear);
- the means of travel along the trail should represent the 'typical' recreationist;
- assess the trail during the optimum period of recreation use; and
- use of a Global Positioning System (GPS) is recommended for identifying the location of backcountry trails.

11.5 Integration With Other Recreation Resource Inventory Themes

The trails and routes inventory, theme 7, integrates with other recreation themes in the following ways:

- provides more detailed inventory information on the trails and routes features indicated in the (broad) recreation features inventory in theme 1;
- attributes 4.2.5 to 4.2.21 from theme 1 are used in the trails and routes inventory (the emphasis is on the trail/route and the comparison between like trails and routes for feature significance); and
- identifies important viewpoints along the trail or route, which could be used as a starting point for a visual landscape inventory (theme 2)

12.0 THEME 8: VIEWPOINT INVENTORY

12.1 What is a Viewpoint Inventory?

A viewpoints inventory is an inventory of viewpoints and viewpoint information which is associated with Recreation Resource Inventory map units, zones or sites within a landscape scene.

The purpose of the viewpoints theme is to attach recreation-related data and photographs to viewpoints which could be used to cross-reference other inventory themes. It is especially important to the visual landscape theme - enabling visual landscape units to now be recognized and managed as part of a complete scene.

12.2 Viewpoint Attributes

Viewpoints are data points with the following database attribute (**bold**) information:

Project Name/Number, Recorder/Keypuncher, Date

Self -explanatory

BCGS Map Number

Self -explanatory

Data ID Number

The data ID number is the viewpoint reference number. Each viewpoint has a four-digit number, which ranges from 0001 to 9999 (note: leading zero's are not shown on the map label). This number is unique when combined with the data type.

Data Types

There are several different viewpoint types:

<u>code</u>	<u>Attribute</u>
V01	major viewpoint
V02	minor viewpoint
V03	site-specific viewpoint
V04	potential viewpoint

Any one of the above viewpoint types can also be a key viewpoint'. Key viewpoints offer the best view of a landscape unit being rated and are ranked as the primary viewpoint on the landscape inventory checklist.

Horizontal Angle of View ID Number

The horizontal angle of view identification number allows multiple viewpoint reference numbers from the same UTM coordinates. This is especially important when there are different landscape views (some partially screened, some open...) and a different rating would be applied to each scene. The angle of view ID number ranges from 1-9 from any given viewpoint.

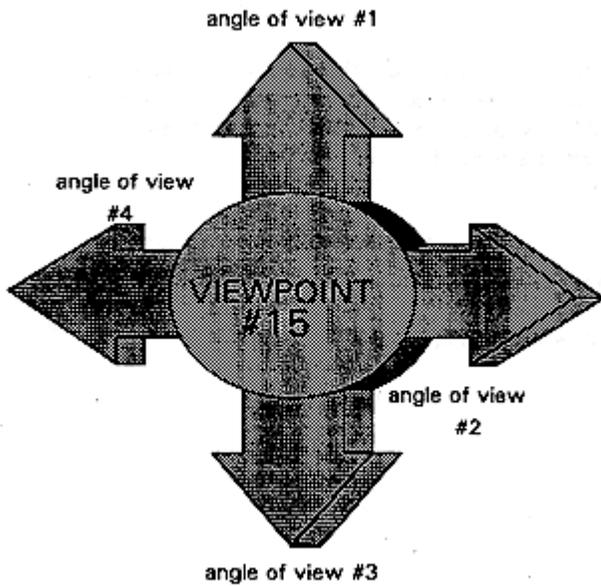


Figure 8: Horizontal Angle of View

Horizontal Angle of View

A horizontal angle of view for each viewpoint is recorded. This angle ranges from 000 - 359 degrees. Entries are made in a clockwise direction. Example: the angle of view #1 may be start 300°/end 45°; and the angle of view #2 may be start 45°/end 150°.

Proposed Scenic Attractiveness Rating

A scenic attractiveness rating will be housed here when it is developed. Refer to the following section 12.3.

Photo - Roll/CD ID Number

A 5-digit identification number is assigned to a photo or slide roll or compact disc (CD). The first two-digits of the ID number corresponds to the current year (e.g. 95). The last three numbers identifies the roll or tape ID number (e.g. 95004: the roll ID is '4').

Photo - Start/End Frame Numbers

The photos are catalogued (numbered from 00 -99) and a photo range is indicated. For example, photo start frame number '04' and photo end frame number '09' (6 photos are inventoried).

Video-tape ID Number

A 5-digit identification number is assigned to each video-tape. The first two-digits of the ID number corresponds to the current year (e.g. 89). The last three numbers identifies the tape ID number (e.g. 89034: the roll ID is '34').

Video-tape - Start/End Frame Numbers

The video footage is catalogued (numbered from 0000 -9999) and a frame range is indicated. For example, video-tape start frame number '0091' and video-tape end frame number '2045'.

Statement of Rationale or Description

Self -explanatory.

12.3 Proposed Scenic Attractiveness Rating

What is a scenic attractiveness rating? A scenic attractiveness rating (SAR) is the degree to which a landscape ,scene has the ability to attract by arousing interest or pleasure in the viewer.

Why include SAR in the recreation resource inventory viewpoint theme?

1. According to the MoF Recreation Manual, Chapter 11:

"In British Columbia, scenic beauty is a much valued resource. British Columbia's world renowned landscapes are a part of its heritage, a source of everyday enjoyment for its residents and the resource base underlying much of the tourism industry. Visual values, therefore, are one of the most important amenity values that make up British Columbia's Provincial Forest recreation resource " (1991),

2. The separation of the recreation features and visual landscape inventory into two themes left a 'gap' because 'visual features' were removed from the recreation features inventory to eliminate duplication,
3. Within the recreation features theme, the 'landscape viewing' activity alone could not fill in the 'gap' because, in most cases, the activity and the landscape being viewed were in two separate polygons. How can the activity attraction capability be used to influence feature significance if the activity takes place elsewhere? (see illustration for recreation feature significance),
4. Doesn't the visual landscape inventory consider scenic beauty? No - it identifies visually sensitivity areas, their existing condition and assigns a visual quality objective which focuses on the degree of acceptable alteration. This naturalness evaluation of the landscape does not identify the scenic beauty. There is no way of distinguishing the 'beautiful' landscape, especially if the visual landscape inventory and analysis rates the 'elements' of a scene - not the entire scene.
5. The scenic attractiveness rating is done from and tied to a viewpoint because it rates the entire scene and the viewpoint attributes can be linked to the recreation features and visual landscape units without 'creating' another visual theme. The recreation and landscape management units could be used to manage a scene or groups of scenes with a combination of SAR or given one overall SAR,
6. Viewpoints are 'theme independent', in other words, a SAR rating, photos etc. can be attached or drawn on any GIS layer or combined with the attribute data from any theme for analysis purposes (e.g. viewpoints and SAR rating completed during a river recreation features inventory),
7. The viewpoints and associated attributes identified in a recreation features inventory could be used to identify potential viewpoints in the landscape inventory and SAR could be used in the analysis portion of the landscape inventory checklist. SAR may influence choice of VQO,
8. If viewpoints attributes are collected (SAR, photos etc.) during a recreation features inventory, the information could be used to do a site-specific landscape inventory if it is required (development plan needs).

SAR fills an essential niche in the overall recreation resource inventory. **What criteria is used to rate SAR?**

The criteria used to determine a scenic attractiveness rating is being developed by the SAR committee which is part of the Recreation Inventory Working Group. The goal of this group is to develop a scenic attractiveness rating that would be objective, provincial in scope and simple to use.

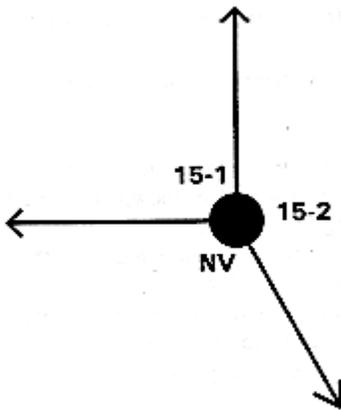
Some factors being considered in assessing scenic attractiveness include the following:

- compositional type (panorama, feature, enclosed, focal or ephemeral);
- landscape character type (e.g. ecosections),
- interfaces ('edge' effect, such as land/water or rock/ice);
- complexity and variety of a scene (vegetation types, depth, landform, relief, number of features, contrast in color/texture etc.);
- compatibility of alteration (alterations are natural or human-caused and includes compatibility/unity of features within the scene; refer to section 5.o);
- visual significance (based on the importance to people; the scenes contain known and appreciated landscape features); and
- inherent scenic quality (imagine the scene without any alterations).

An example of a scenic attractiveness rating is shown in appendix D.

12.4 Viewpoints Map Label

The viewpoints map label contains the viewpoint data ID number/horizontal angle of view. ID number (e.g. 15-1), the viewpoint symbol (•), direction arrows (->) and the approximate horizontal angle of view.



12.5 Special Considerations for Fieldwork Procedures

The fieldwork procedure for carrying out a viewpoint inventory has been mentioned in most of the recreation resource inventory themes. Assessing a viewpoint (based on the attributes mentioned in section 12.0) is fairly straightforward, but choosing a viewpoint is a different matter. There may be a fixed number of viewpoints or an infinite number (e.g. marine corridor).

There is no definite criteria for choosing the location of a viewpoint, except that it must represent the best view of the unit, zone or site being assessed.

Some considerations in choosing a viewpoint include:

- observer purpose (e.g. driving for pleasure; driving to work; sightseeing; bird watching; enjoying the view from your living room);
- type of viewing experience (e.g. highway 'fixed' views or marine corridor 'dispersed' views; if it's a marine corridor, the viewpoints may be chosen arbitrarily at fixed intervals on either side of the corridor);
- type of assessment (e.g. recreation features significance rating or visual landscape assessment);
- duration of view (e.g. stationary or mobile);
- observer position (above, below or level); and
- choose the best viewing distance [e.g. a foreground view (viewpoint 1) may not reveal the whole unit being assessed; the mid-ground view (viewpoint 2) may offer the best view of the whole unit].

Review the above criteria and select the 'best' location to view the land unit being assessed.

12.6 Integration With Other Recreation Resource Inventory Themes

The viewpoints inventory, theme 8, integrates with other recreation themes in the following ways:

- connects all recreation resource inventory themes to the same viewpoint;
- connects visual landscape units (polygons) to a viewpoint or viewpoints within theme 2 and provides an opportunity to manage the 'scene';
- a scenic attractiveness-rating can be done from any viewpoint and used in the activity attraction capability rating for themes 1, 5 and 7; and
- photos, slides or videos taken for a project within one theme can be used with other recreation themes (e.g. photo taken in a recreation features inventory to represent a land unit with high activity attraction capability for scenic viewing may be included with a visual landscape inventory).

13.0 THEME 9: FOREST SERVICE RECREATION SITES INVENTORY

13.1 What is a Forest Service Recreation Sites Inventory?

The Forest Service recreation sites inventory is an inventory of the status and associated facilities of designated Forest Service recreation sites.

13.2 Link to Another Database: FTAS

The structure and definitions for this theme is based on the current structure identified in the Forest Tenure Administration System (FTAS): Recreation Component.

13.3 Integration With Other Recreation Resource Inventory Themes

The FS recreation sites inventory, theme 9, integrates with other recreation themes in the following ways:

- provides information on the existing condition of the Forest Service recreation site and contributes to the classification of the existing ROS class (theme 3) and the existing river experience class (theme 4), and
- may influence the feature significance rating for nearby land/water units within theme 1 and the zones within themes 5 and 7 (e.g. if a sand beach is near a FS recreation site, it's activity attraction capability may become higher because it compliments the activities occurring at the recreation site).

14.0 THEME 10: CAVE INVENTORY

14.1 What is a Cave Inventory?

Caving or spelunking has become an increasingly popular outdoor recreation sport. There are over 750 discovered caves on Vancouver Island alone, with many more throughout the province yet to be discovered.

According to the Cave/Karst Management Handbook (Vancouver Forest Region),

'Initially recreational cavers were content to find, explore, photograph and map their finds. However, when some of the more significant cave became vandalized and/or destroyed through indiscriminate resource use, individual cavers and caving groups began to advocate government participation in the management of the cave resource.'

'These caves are a unique non-renewable resource with geological, scenic, educational, cultural, biological, hydrological, paleontological and recreational values. The management of caves (both surface and subsurface of resources) is considered to be an essential component of integrated resource management. The Ministry of Forests, within its recreation mandate, has become the focal point for expressing cave resource issues to government "' (1994)

The cavers on Vancouver Island have met several times these last few years with the Forest Service to resolve some of the caving issues and produce a standards and procedures handbook for cave management.

14.2 Overview of Cave Inventory Attributes

The handbook defines and describes the attributes required to complete a cave inventory. These attributes still need to be refined to make the 'wording' and some of the definitions compatible with the overall FS recreation resource inventory. The following is a list of the cave attributes which would be included in the cave inventory theme (data point type and reference number linked to attributes in another database):

- BCGS map number .
- NTS map number
- project number
- data ID number (same as unique cave number)
- data type
- cave name
- cave marked at entrance
- UTM coordinates

- geological formation
- type of cave
- cave profile graph images
- dominant rock type
- type and number of entrances
- length of all known passages
- pattern of cave
- trend of cave from entrance
- vertical relief of cave
- water element hazard present
- technical grade cave contents
- feature scarcity
- feature uniqueness
- activity attraction
- capability feature
- significance feature
- sensitivity management class: recommended or approved
- statement of rationale or description (e.g. records)

Refer to the Cave/Karst Management Handbook for the detailed descriptions of the above attributes.

14.3 Link to an external database

Caves will be recognized as a map site or data point with a symbol, which will be linked out to an external database. This database is in the process of being developed.

14.4 Cave Map Label

The cave inventory map label (example) would be a cave data ID number and symbol representing point data:



14.5 Integration With Other Recreation Resource Inventory Themes

The cave inventory, theme 10, integrates with other recreation themes in the following ways:

- provides more detailed information on the cave/karst feature identified in the recreation features inventory (theme 1);
- the management class assigned to caves takes precedence over the management class assigned to land units within the recreation features inventory if the classes are different; and
- information derived from the cave inventory could be used in the educational and interpretive capability inventory (theme 11).

15.0 THEME 11: FOREST INTERPRETATION OR EDUCATION CAPABILITY INVENTORY

15.1 What is a Forest Interpretive or Education Capability Inventory?

A forest interpretive or education capability inventory is an inventory of potential sites or areas within provincial forest which have a good opportunity for forest interpretation or education. This inventory is based on an analysis of other inventories within the Forest Service and other ministries.

The purpose of MoF forest interpretation is to encourage mutual understanding between the Forest Service and the public regarding forest stewardship, to enable the Forest Service to act in the public interests.

The goals of the MoF forest interpretation activities are to:

- provide information and encourage discussion about forest resources, forest ecosystems, sustainable development and current and future forest management practices with a variety of public groups
- foster public understanding of the role and mandate of the Ministry of Forests, as well as the public's role in managing forest resources
- provide a variety of forest recreation opportunities and facilities such as self-guided tours, sites, trails, boat launches, and viewpoints where users can be exposed to forest interpretation and educational opportunities.

15.2 Overview of Forest Interpretive Attributes

Forest interpretive attributes are generated through the analysis of other inventory themes. The structure and database storage will still need to be further developed and the inventory tested.

This draft overview of interpretive attributes for inventory, analysis and planning will be provided to give interim guidance to MoF staff and promote discussion. It is intended to expand and update the planning section of the *Forest Interpretation Policy Framework* (1993) until further reference material is developed and formal policy is approved.

An inventory of the interpretive capability of the land base within the Provincial Forest is an important first step in preparing a plan to achieve these goals. This information is largely available in existing MoF inventories, such as the recreation values noted within the recreation features inventory or the scenic attractiveness rating.

The proposed inventory criteria (Sranko, 1994) for determining forest interpretation and education capability are:

1. natural biophysical resources or features,
2. cultural or heritage resources or features,
3. forest resource management practices.
4. location: access and proximity to other significant features or facilities,

15.3 Special Considerations for Fieldwork Procedures

Interpretive Plans are proposed as one component of the strategic plans prepared by Forest Districts in conjunction with various planning processes (see how it all fits together in section 18.1). The first step is to undertake a district-wide or area-wide inventory of features and activities; the second step is to identify interpretive themes, and the third step is to assess sites for interpretation/education capability.

Once sites with high interpretive significance and capability are identified, site plans can be developed on a priority basis for specific sites.

15.3.1 Step 1: Inventory of Features and Activities

The first step for a district interpretive master plan is a "coarse-filter" assessment to highlight features and locations with potential for interpretation/education. Digital files and map overlays of various recreation database attributes may be generated to show each of the following:

1. Significant biophysical features (significance ratings A-C - moderate to very high). The main source of information is the recreation features inventory.
2. Significant cultural and historic features (significance ratings A-C - moderate to very high)
3. Significant resource management activities and features that tie in with the themes identified for forest interpretation initiatives (see Draft Forest Interpretation Policy Framework 1993), namely:
 - the major theme of forest resources and their management, and,
 - the sub themes of forest ecosystems, land use issues, the role of the Ministry of Forests, timber harvesting and silvicultural practices.
4. ROS classes ranging from semi-primitive to rural.

These map overlays should highlight areas and locations with moderate to high interpretive potential. Local knowledge and experience of stage is invaluable at this stage to refine the list of features and locations to come up with those considered to have high interpretive potential.

Along with recreation values, this inventory should be as comprehensive as resources will allow and should also access the following inventory information:

Soils	Biogeoclimatic zones
Riparian areas	Wildlife habitat, including critical range
Archeological data	Land status
Visual Quality Objectives	Recreation facilities (trails, sites, etc.)
Range data	Forest cover data
Past resource use	Geologic data, e.g., caves, canyons, fossils
Human history	Public safety hazards
Plant communities	Rivers, lakes and streams

15.3.2 Step 2: Identifying Interpretive Themes

The second step is to develop appropriate themes and stories for interpretation/ education within the Forest District, based on the features identified in the coarse-filter inventory.

Here is a brief overview of the use of interpretive themes and stories:

Themes guide the overall direction of an interpretive program, giving it a general focus. Themes provide a brief synopsis of the central or key idea being conveyed and should reveal the overall purpose for interpretation in an area. *Stories* expand on a particular aspect of the theme and convey a specific *message* to the viewer.

Examples of themes include:

- Forests provide many resources and use must be balanced to reflect the desired mix of environmental, economic, and social values.
- Hidden within the scenic beauty is a multitude of conservation and forest management practices that enhance the forest experience.
- The history of Logan Valley is one of changing relationships between human need and natural resources.

Taking the first theme above as an example, the following stories could be developed to elaborate and to provide a focus for detailed messages:

- Natural forest ecosystems provide a home to many plants and animals.
- Logging provides for the economic needs of people but can easily impact negatively on natural ecosystems if precautions are not taken
- Riparian habitats must be managed carefully to protect rivers and streams and the fish that inhabit them.
- People often find large clear cuts visually offensive but, if properly designed, clear cuts can become more socially acceptable.

15.3.3 Step 3: Assessing Interpretive Potential

Given the themes and stories developed in step 2, the interpretive Analysis Matrix (next page) can be used to assess specific sites and locations for interpretive potential. Sites and locations with a high rating on the point ratings would warrant closer examination and the possible development of interpretive site plans (refer to the *Draft Forest Interpretation Policy Framework* (1993) for further information).

15.3.4 Analysis of Interpretive Significance

The following provides a draft framework for determining the forest interpretation and education significance of candidate sites through the use of an analysis matrix:

Phase I: Point rating system for candidate sites					
Interpretive Criteria	Point Rating				Rating
	4	3	2	1	
Biophysical Features (e.g. lakes, waterfalls, ancient forests, burn areas, volcanic features, hot springs, fossils)	national or provincial significance	regional significance	local significance	common	
Cultural or Heritage Features Cultural and historic values, features and sites	national or provincial significance	regional significance	local significance	common	
Resource Management Activities and Features Opportunity to discuss past or present resource management practices	very high	high	moderate	low	
Sub-Total Points					

Table 4: Phase I Assessing Interpretive Potential

Phase II: Complete only for candidate sites that have > 6 points on Phase I.					
Location Criteria	Point Rating				Rating
	2	1.5	1	0.5	
Access • Distance to major travel route (paved hwy. or secondary rd);	<5 km. from major hwy.;	<10 km from major hwy.;	<20 km from secondary road;	>20 km from secondary road;	
Proximity • Proximity of rated feature to another significant feature	very high proximity (<1/2 hr drive)	high proximity (1/2 - 1 hr drive)	moderate proximity (1-2 hr's drive)	low proximity (> 2 hr's drive)	
Total Points					

Table 5: Phase II Assessing Interpretive Potential

15.3.5 Proposed Rating Scheme

Phase I: Add rating for each criteria (1-3) to give a total from 3 to 12.

Phase II: Complete for those sites with 6 points or more in Phase I. Add points for both phases for total points and compare to table below for overall significance.

Total	Interpretive/education Significance
14-16:	Very High
11-13:	High
8-10:	Moderate
4-8:	Very low to Low

15.4 Integration With Other Recreation Resource Inventory Themes

The forest interpretive or educational capability inventory could be used for 'interpretive' management plans for specific sites. Once sites with high interpretive/education significance have been identified, interpretive management plans could be prepared for each site before any development takes place. In the case of Interpretive Forest Sites, these plans will establish the objectives for each site (within 6 months of establishment) as required under Section 6 of the *Forest Practices Code of B.C. Act*. As set out in the Act, both management plans and objectives are considered higher level plans and any development that takes place in these areas must be consistent with these higher level plans.

More comprehensive information on interpretive planning is presented in the *Draft Forest Interpretation Policy Framework* (1993).

The forest interpretive or educational capability inventory, theme 11, integrates with other recreation themes in the following ways:

- uses the attribute information from all the recreation themes to help determine forest interpretive or educational capability (e.g. significant recreation features within themes 1, 5 and 7); and
- influences the recommendation of visual quality objectives in theme 2 (interpretive or educational values are one of the 'other' amenity values).

16.0 THEME 12: BACKCOUNTRY MONITORING INVENTORIES

16.1 What are Backcountry Monitoring Inventories?

Backcountry monitoring inventories are a means of keeping track of changes to the physical features over time. There are two types currently used by the Forest Service: Permanent Sampling Units (PSU) and Rapid Estimation Plots (REP). Both can be identified through data points on a map with a data point type and reference number linked to attributes in another database.

16.2 Overview of PSU and REP Attributes

The following is a list of PSU database attributes:

- BCGS map number
- project number
- site name
- data ID number
- data type (include permanent or non-permanent)
- time start/end; total time
- UTM coordinates
- comparison site? (...name or ID number instead of location?)
- location of relative site?
- distance from center point
- devegetated area
- campsite area
- tree reproduction; number of trees; number of stumps; number of trees with exposed roots, trunk scars, cut branches and nails
- bearings of random transect
- quadrant measurements (e.g. transect-quadrat number; % cover vegetation; % exposed mineral soil; # of exposed rocks; # of tree roots; # of trunks)
- description

The following is a list of REP attributes as identified on the REP Impact Evaluation Form:

- BCGS map number
- project number
- site name/number
- data ID number
- site location (map number and UTM coordinates)
- comparison site (location relative to site)
- site diagram (image file)
- vegetation cover

- mineral soil exposure
- vegetation loss
- mineral soil increase
- tree damage
- root exposure
- development
- cleanliness
- social trails
- camp area
- barren core camp area
- photo record (or viewpoint reference number?)
- noxious weed species
- introduced plant species
- impact index rating
- comments

16.3 Link to an Another Database

The backcountry monitoring inventories (point locations) are linked to an external database for analysis: SAS.

16.4 Special Considerations for Fieldwork Procedures

REP is based on the Bob Marshall Rapid Estimation Procedure (adapted from Cole 1983a, 1984).

16.5 Integration With Other Recreation Resource Inventory Themes

The backcountry monitoring inventory, theme 12, integrates with other recreation themes in the following ways:

- the recreation impact assessment information may be used to determine if management objectives are being achieved within themes 1 - 5 or 7.

17.0 RECREATION & VISUAL LANDSCAPE MANAGEMENT UNITS

17.1 What is a Recreation & Visual Landscape Management Unit?

Recreation and visual landscape management units are administrative boundaries identifying areas of land within Provincial Forests to tie together and assist in managing land/water units, zones and sites within all inventory themes described in the recreation resource inventory. Recreation management units (RMU) focus on maintaining, protecting, or developing significant recreational values. Visual Landscape Management Units (VLMU) focus on the degree of acceptable landscape alteration if timber harvesting occurs (based on VSR, VAC and EVC; refer to section 5.0).

Recreation or visual landscape management units represent drainages or groups of water/land units, zones, or sites with similar attributes.

17.2 Link to an Administrative Layer in Corporate Database

Both recreation and visual landscape management units are linked to an administrative layer within the Ministry of Forests corporate database: The administrative layer would include: the Schedule "A" (site boundary) for Forest Service recreation sites; TFL boundaries; private property boundaries etc..

17.3 Procedure for Classifying Management Units

Once the recreation resource inventory has been completed, management units can be assigned to groups of recreation land units, visual landscape units or any of the units or zones classified in the recreation resource inventory. These management units connect individual land units or zones that have an important 'relationship'. This relationship could be based on a number of values: complete drainages, biophysical character, recreation activity; experience setting; scenic attractiveness; degree of alteration etc.

The management unit is delineated, identified (reference number) and a brief summary is provided. This summary 'ties' the various land units and/or zones together (regardless of mapsheet) and includes measurable objectives. These objectives may provide direction on 'how' to maintain or rehabilitate the recreation resource features and provide valuable information to the various levels of planning. RMU's and LMU's are included with the recreation resource inventory report.

17.4 Integration With Recreation Resource Inventory Themes

Recreation and visual landscape management units consider the values within all recreation resource inventory themes.

18.0 RECREATION INVENTORIES AND PLANNING DECISIONS

18.1 How Does it All Fit Together?

The planning process is responsible for developing broad strategic planning objectives as well as 'on the ground' operational objectives to meet needs for which a planning table was established. In terms of outdoor recreation resources, these objective become critical tools for the recreation resource manager to efficiently manage the resource. each level of objectives, whether strategic or operational, are designed to function at their respective levels. For example, strategic objectives function very poorly as operational objectives and are best suited to be used at the strategic level. The same can be said regarding operational objectives.

This flow chart is designed to conceptualize this relationship...

This flow chart is designed to conceptualize this relationship...

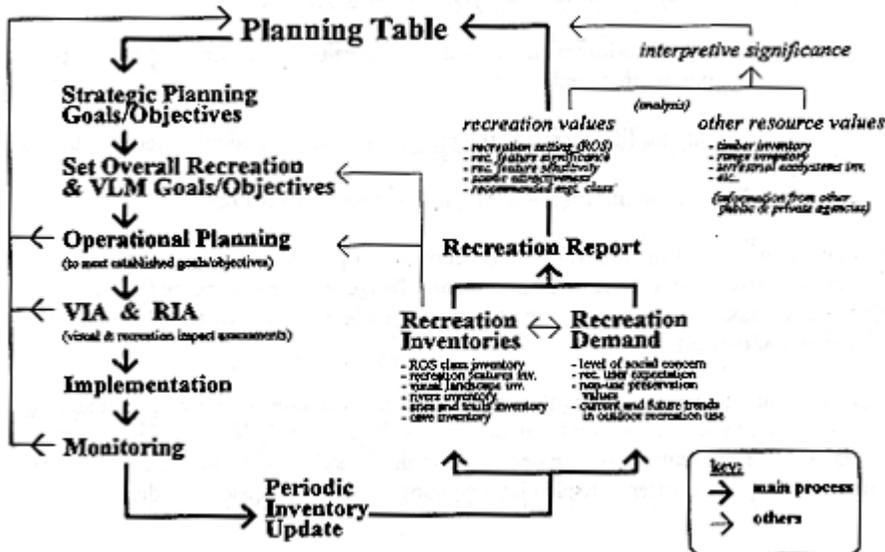


Figure 9: Recreation Resource Inventory and the Planning Process

Recreation values are presented to a planning table through a recreation report. The recreation report represents recreation resource inventory and monitoring information and demand to suit the purposes of a planning table that has been established. It is important that the planning table understand all the rationale behind the submission and the

implications of their decisions if they adopt any or all of the recommendations in the report.

There are two fundamental concepts that need to be incorporated into a planning process from the outdoor recreation perspective:

1) Recreation Opportunity Spectrum (ROS)- a framework for inventorying, planning and managing recreation resources to enable a full range of sustainable quality public outdoor recreation experiences (e.g. ROS class goals),

2) Recreation Impact Assessment (RIA) - a strategy used to determine if the acceptable limits and rate of alteration to recreation features conforms to objectives set out in a higher level plan. These strategies include:

describing the recreation opportunities that will be available;

identifying the ecological and social factors likely to change and select indicators which can measure this change;

setting a maximum indicator threshold value for the amount of acceptable change on that land base;

identifying (if necessary) the measures to correct deteriorated conditions.

Regular monitoring of ecological and social indicators.

The implementation of the management objectives and prescriptions for an area would be monitored to ensure that the level of acceptable change is not being exceeded. If objectives are not being achieved, the area may again be reviewed by the planning table and new objectives set.

The recreation resource inventory themes are meant to operate collectively for planning purposes. Each theme contains information that is fundamentally linked to the other themes. Thus, a particular planning decision should consider and be linked to all recreation themes and provide greater defendability and support for the decisions made.

19.0 RECOMMENDATIONS

Recommendations which will compliment this document and contribute to a better understanding of the recreation resource inventory process include:

1. further field testing is required for river (backcountry), trail, cave and interpretive inventory themes;
2. the 'screens' inventory (section 5.7) needs further development;
3. certification and training in swiftwater rescue for individuals carrying out a river recreation inventory is needed;
4. a scenic attractiveness rating needs to be developed and field tested within the 'review' period of this document;
5. cartographic standards for all recreation resource inventory themes need to be developed (theme 1 and 2 have some standards layed out in the MoF, Recreation Manual);
6. digitizing standards for all recreation resource inventory themes need to be developed (Kamloops Forest Region has interim procedures for visual landscape inventories);
7. a standard map legend for each recreation resource theme needs to be developed,
8. include in the final report a sample of an inventory map, checklist and attribute sheet for each recreation resource theme;
9. develop a standard Forest Service questionnaire for public involvement in the recreation resource inventory;
10. a study is needed to examine the sensitivity of the various recreation features to recreation use and resource development;
11. cross-reference and incorporate recreation values from other resource inventories being developed through the Resource Inventory Committee during the review period of this document; and
12. all Forest Service recreation and visual landscape staff require training in the new recreation resource inventory standards and procedures before implementing the inventory.

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COMMENTS:

APPENDIX 'A'

GLOSSARY OF TERMS

This glossary contains definitions of technical terms and acronyms used in this document.

Attribute	In relational database management, a field within a record.
Data structure	Physical layout of data. Data fields, memo fields, fixed length fields, variable length fields, records, word processing documents, spreadsheets, data files, database files and indexes are all examples of database structures.
Data type	Category of data. Typical data types are numeric, alphanumeric (character), dates and logical (true/false). Programming languages allow for the creation of different data types.
Database	A set of interrelated files that is created and managed by a Database Management System (DBMS); any electronically-stored collection of data.
Layer	One of several on-screen ,drawing boards" for creating elements within a picture. Layers can be manipulated independently, and the sum of the all layers make up the total image.
Polygon	In computer graphics, a multi-sided object that can be filled with color or moved around as a single entity.
MELP	Ministry of Environment, Lands and Parks
SBTC	Ministry of Small Business, Tourism and Culture
MoF	Ministry of Forests
THWY	Ministry of Transportation and Highways
TFL	Tree Farm Licence
TSA	Timber Supply Area
GIS	Geographic Informations Systems
W.C.B.	Workers Compensation Board of B. C.
UTM	Universal Transerse Mercator

APPENDIX 'B'

RECREATION FEATURE

DEFINITIONS & PHOTOS

APPENDIX B - Recreation Feature Definitions and Photos (to be included at a later date)

APPENDIX 'C'

Field Checklists for Themes 1-8:

Database Attribute Sheets For Themes :1-12



THEME 1: DRAFT RECREATION FEATURES INVENTORY CHECKLIST

Forest District: _____ Polygon ID Number: _____

Rated By: _____ BCGS Map Number: _____

Date: _____ Cross-Mapsheet Polygon Number: _____

Recreation Management Unit Number: _____

Project Name or Number: _____

Primary Viewpoint [BCGS Mapsheet Number]: _____

Secondary Viewpoint [BCGS Mapsheet Number]: _____

Tertiary Viewpoint [BCGS Mapsheet Number]: _____

RECREATION FEATURES:		RECREATION ACTIVITIES:				
1.		1.				
2.		2.				
3.		3.				
4.		4.				
5.		5.				
6.		6.				
7.		7.				
8.		8.				

RECREATION FACTORS:	FEATURES:	Rating:				
		Very High	High	Mod.	Low	N/A
Most Scarce Feature	1 2 3 4 5 6 7 8					N/A
Feature Scarcity		VH	H	M	L	N/A
Most Unique Feature	1 2 3 4 5 6 7 8					N/A
Activity Attraction Capability		VH	H	M	L	N/A
Scenic Attractiveness		VH	H	M	L	N/A
Geographic Significance		VH	H	M	L	N/A
Feature Significance		VH	H	M	L	N/A
Most Sensitive Feature to Recreation Use	1 2 3 4 5 6 7 8					N/A
Feature Sensitivity to Recreation Use		VH	H	M	L	N/A
Most Sensitive Feature to Resource Dev.	1 2 3 4 5 6 7 8					N/A
Feature Sensitivity to Resource Development		VH	H	M	L	N/A
Recommended Management Class Rating: 0 1 2						
Cultural/Historic, and Archaeological Features		C	A	B		N/A
Cultural/Historic Reference Number						
Archaeological Reference Number						

☒ STATEMENT OF RATIONALE & COMMENTS ON REVERSE



THEME 2: DRAFT VISUAL LANDSCAPE INVENTORY CHECKLIST



- Forest District: _____ 4. BCGS MAP #: _____ 8. Ecoregion: _____
1. Project Name/Number: _____ 5. VLU# (BCOS): _____ 9. Viewpoints: Φ (key) _____ Φ _____
2. Rated by: _____ 6. VLU# (Cross-mapshot): _____ 10. Observer Position: above level below
3. Date: _____ 7. VLMU# (Mgt.): _____ 11. Screening: open partial closed

VLM PHASE:	FACTORS:	RATINGS (One circle and indicate relevant criteria):				COMMENTS (continued on reverse):					
		HIGH	MODERATE	LOW	N/A						
INVENTORY	<i>Biophysical</i>										
	12. Landform Variety and Prominence	H	M	L	-						
	13. Vegetation Continuity <input type="checkbox"/> OR Variety <input type="checkbox"/>	H	M	L	-						
	14. Rock/Soil	H	M	L	-						
	15. Water	H	M	L	-						
	16. Influence of Edges	H	M	L	-						
	17. Influence of Adjacent Scenery	H	M	L	-						
	18. Overall Biophysical Features Rating	H	M	L	-						
	<i>Human</i>										
	19. Viewing Distance	Foreground	Midground	Background	-						
	20. Viewing Frequency (# of viewpoints)	Many	Some	Few	-						
	21. Key Viewpoint Importance	H	M	L	-						
	22. Viewing Duration	Long	Moderate	Short	-						
	23. Viewing Angle and Focus (horizontal)	Focal	Tangent	Peripheral	-						
	24. \Rightarrow	Visual Sensitivity Rating: H M L									
	ANALYSIS	25. Slope Class	Gentle	Moderate	Steep	-					
		26. Vegetation Pattern Diversity	H	M	L	-					
		27. Topographic Variety	H	M	L	-					
		28. Rock or Soil/Vegetation Contrast	H	M	L	-					
		29. Aspect	N/NW/NE	E-W	S/SW/SE	-					
		30. \Rightarrow	Visual Absorption Capability Rating: H M L								
		E	31. Meets Basic VQO Definition	P	R	PR	M	MM	EM	-	i. VEG = a. None b. Some c. Quite d. Very e. Fully f. N/A
		V	32. Design Quality of Alteration	Good	Moderate	Poor	-	-	-	ii. Types of Alteration: a. _____ b. _____ c. _____ d. N/A	
		C	33. Design Quality of Roads	Good	Moderate	Poor	-	-	-		
	34. % of VLU in Altered, Non-Veg. State	0-10	10-20	20-30	30-40	40-50	50-60	60-70			
	35. \Rightarrow	Existing Visual Condition: P R PR M MM EM									
R	36. Visual Sensitivity Rating (same as above)	H	M	L	-	-	-	-			
V	37. Number of Viewers	H	M	L	-	-	-	-			
Q	38. Scenic Attractiveness (SAR)	H	M	L	-	-	-	-			
O	39. Level of Concern/User Expectations	H	M	L	-	-	-	-	iii. Types of Amenity Values: a. _____ b. _____ c. _____ d. N/A		
	40. \Rightarrow	Recommended VQO: P R PR M MM (RH EH)									



THEME 3: DRAFT ROS INVENTORY CHECKLIST

Forest District: _____ Polygon ID Number: _____

Rated By: _____ BCGS Mapsheet: _____

Date: _____ Cross-Mapsheet Polygon Number: _____

Recreation Management Unit Number: _____

Project Name or Number: _____

(OPTIONAL) Primary Viewpoint [BCGS Mapsheet Number]: _____

(OPTIONAL) Secondary Viewpoint [BCGS Mapsheet Number]: _____

(OPTIONAL) Tertiary Viewpoint [BCGS Mapsheet Number]: _____

ROS INVENTORY TYPE:		CODE (circle one)							
Existing ROS Class		E							
Recommended ROS Class		R							
Approved ROS Class		A							
ROS CRITERIA & FACTORS:	ROS CLASSES & RATINGS:								
	P	SPNM	SPM	N	RN	RM	R	U	
Naturalness									
1. Naturalness in environment	VH	VH	H	H	M-H	M-L	L	VL	
2. Evidence of other people	VL	VL	L	L-M	L-M	M-H	H	VH	
3. Evidence of restrictions/controls	N	VL	L	L	L-M	M-H	H	VH	
4. Recreation facility development	N	N-L	L	L-M	L-M	M-H	H	VH	
5. Site modifications	N-VL	N-VL	L	L	L-M	M-H	M-H	H-VH	
Remoteness									
6. Opportunity for solitude, closeness to nature, self-reliance and challenge	VH	H	H	M-L	M-L	L-M	L	VL	
7. Sense of remoteness	VH	H	H	M	M	L-M	L	VL	
Social Encounters									
8. Interaction with others	VL	L	L-M	L-M	L-M	M-H	H-VH	VH	
9. Party size expected	VL	VL	L	L-H	L-H	M-H	H	VH	
Access									
10. Approximate kilometers from a road	8km 4w road	≤ 1km 4w road	≤ 1km 4w road	1-3 km any road	≤ 1km any road	≤ 1km any road	≤ 1km any road	≤ 1km 2w paved	
11. Motorize use within area	N-VL	N-VL	L-M	L-M	L-M	M-H	H	VH	
12. Motorized access to shore	N-VL	N-VL	L-M	L-M	L-M	M-H	M-H	H-VH	
Size									
13. Approximate size of area	5040ha	1040ha	1000ha	<1000ha	none	none	none	none	
ROS CLASS FOR POLYGON:									
SEASON OF USE (circle one):					Summer	Winter			

STATEMENT OF RATIONALE & COMMENTS ON REVERSE



THEME 4: DRAFT RIVER EXPERIENCE CLASS INVENTORY CHECKLIST

Forest District: _____ River Zone ID Number: _____

Rated By: _____ Zone Type (if not U01): _____

Date: _____ NTS Map Number: _____

Project ID: _____ BCGS Map Number: _____

River Name: _____ Watershed ID Number: _____

(OPTIONAL) Primary Viewpoint [BCGS Mapsheet Number]: _____

(OPTIONAL) Secondary Viewpoint [BCGS Mapsheet Number]: _____

(OPTIONAL) Tertiary Viewpoint [BCGS Mapsheet Number]: _____

REX INVENTORY TYPE:		CODE (circle one)						
Existing REX Class		E						
Recommended REX Class		R						
Approved REX Class		A						
REX CRITERIA & FACTORS:	REX TYPES & RATINGS:							
	PR	SPR	NR	MRC	MRI	RR	UR	
Naturalness								
1. Naturalness in environment	VH	H	B	M	M	L	VL	
2. Evidence of other people	N-VL	VL	L-M	M-H	M-H	H	VH	
3. Evidence of restrictions/controls	N-VL	VL	L	M-H	M-H	H	VH	
4. Recreation facility development	N-VL	N-L	L	M-H	M-H	H	VH	
5. Site modifications	N-VL	N-VL	L	M	M-H	M-H	H-VH	
Remoteness								
6. Opportunity for solitude, closeness to nature, self-reliance and challenge	VH	H	L-M	L-M	L-M	L	VL	
7. Sense of remoteness	VH	H	M	L-H	L-M	L	VL	
Social Encounters								
8. Interaction with others	VL	L	L-M	M-H	M-H	H-VH	VH	
9. Party size expected/boats per group	VL	VL-L	L-M	L-H	L-H	H	H-VH	
Access								
10. Road access development along river	N	N	N	L-H	M-H	H	H-VH	
11. Motorized vehicle access and motorized watercraft use	N	L	L-M	L-H	M-H	H	H-VH	
12. Visibility of roads from the river	N	N-L	N-L	L-H	M-H	H	H-VH	
Duration of Experience								
13. Length of river zone (km)	> 16 km	> 8 km	1-8 km	none	none	none	none	
RIVER EXPERIENCE CLASS FOR ZONE:								
SEASON OF USE (circle one):				Summer	Winter			

STATEMENT OF RATIONALE & COMMENTS ON REVERSE



THEME 5: DRAFT RIVER FEATURES INVENTORY CHECKLIST

Forest District: _____ River Zone ID Number: _____

Rated By: _____ Zone Type (if not U01): _____

Date: _____ NTS Map Number: _____

Project ID: _____ BCGS Map Number: _____

River Name: _____ Watershed ID Number: _____

(OPTIONAL) Primary Viewpoint [BCGS Mapsheet Number]: _____

(OPTIONAL) Secondary Viewpoint [BCGS Mapsheet Number]: _____

(OPTIONAL) Tertiary Viewpoint [BCGS Mapsheet Number]: _____

RECREATION FEATURES:				RECREATION ACTIVITIES:									
1.	5.	1.	5.	2.	6.	2.	6.						
2.	6.	3.	7.	3.	7.	3.	7.						
3.	7.	4.	8.	4.	8.	4.	8.						
4.	8.												
Dominant River Pattern				AB	AJ	AA	AR						
				R	L	X							
RECREATION FACTORS:		FEATURES:		Rating:									
				Very High	High	Mod.	Low	N/A					
Most Scarce Feature		1 2 3 4 5 6 7 8						N/A					
Feature Scarcity				VH	H	M	L	N/A					
Most Unique Feature		1 2 3 4 5 6 7 8						N/A					
Activity Attraction Capability				VH	H	M	L	N/A					
Scenic Attractiveness				VH	H	M	L	N/A					
Geographic Significance				VH	H	M	L	N/A					
Feature Significance				VH	H	M	L	N/A					
Most Sensitive Feature to Recreation Use		1 2 3 4 5 6 7 8						N/A					
Feature Sensitivity to Recreation Use				VH	H	M	L	N/A					
Most Sensitive Feature to Resource Develop.		1 2 3 4 5 6 7 8						N/A					
Feature Sensitivity to Resource Develop.				VH	H	M	L	N/A					
Recommended Management Class Rating: 0 1 2													
Mode of Travel to River:				1	2	3	4	5	6	7	8	9	10
Access Distance from Road:		km	Boat Launch Type:		x	y	z	N/A					
Record all site data within the zone (P01=portage start/end; P02=access start/end; P03=launching site; P04= gauging station):													
Site ID Number		Site Type		Site ID Number		Site Type							

24 STATEMENT OF RATIONALE & COMMENTS ON REVERSE



THEME 6: DRAFT WHITEWATER CLASSIFICATION INVENTORY CHECKLIST

Forest District: _____ River Zone ID Number: _____

Rated By: _____ Zone Type (if not U01): _____

Date: _____ NTS Map Number: _____

Project ID: _____ BCGS Map Number: _____

River Name: _____

Watershed ID Number: _____

(OPTIONAL) Primary Viewpoint [BCGS Mapsheet Number]: _____

(OPTIONAL) Secondary Viewpoint [BCGS Mapsheet Number]: _____

(OPTIONAL) Tertiary Viewpoint [BCGS Mapsheet Number]: _____

OPTIMUM PERIOD OF USE (Months)	START (01 - 12)	END (01 - 12)
RANGE 1:		
RANGE 2:		

WHITEWATER CLASSES (circle one for each):									
DOMINANT WHITEWATER CLASS	F	I	II	III	IV	V	VI	N	U
RANGE - LOWER LIMIT	F	I	II	III	IV	V	VI	N	U
RANGE - UPPER LIMIT	F	I	II	III	IV	V	VI	N	U

Record all site data within the zone (e.g. P04= gauging station):

SITE ID NUMBER	SITE TYPE	SITE ID NUMBER	SITE TYPE
GAUGING STATION REFERENCE NUMBER:			

☑ STATEMENT OF RATIONALE & COMMENTS ON REVERSE



THEME 7: DRAFT RECREATION TRAILS AND ROUTES INVENTORY CHECKLIST

Forest District: _____ Trail Zone ID Number: _____

Rated By: _____ Zone Type (if not U02): _____

Date: _____ NTS Map Number: _____

Project ID: _____ BCGS Map Number: _____

Trail Name: _____ Trail Profile Ref. Number: _____

(OPTIONAL) Primary Viewpoint [BCGS Mapsheet Number]: _____

(OPTIONAL) Secondary Viewpoint [BCGS Mapsheet Number]: _____

(OPTIONAL) Tertiary Viewpoint [BCGS Mapsheet Number]: _____

RECREATION FEATURES:		RECREATION ACTIVITIES:					
1.	5.	1.	5.				
2.	6.	2.	6.				
3.	7.	3.	7.				
4.	8.	4.	8.				
RECREATION FACTORS:	FEATURES:	Rating:					N/A
		Very High	High	Mod.	Low		
Most Scarce Feature	1 2 3 4 5 6 7 8						N/A
Feature Scarcity		VH	H	M	L		N/A
Most Unique Feature	1 2 3 4 5 6 7 8						N/A
Activity Attraction Capability		VH	H	M	L		N/A
Scenic Attractiveness		VH	H	M	L		N/A
Geographic Significance		VH	H	M	L		N/A
Feature Significance		VH	H	M	L		N/A
Most Sensitive Feature to Recreation Use	1 2 3 4 5 6 7 8						N/A
Feature Sensitivity to Recreation Use		VH	H	M	L		N/A
Most Sensitive Feature to Resource Develop.	1 2 3 4 5 6 7 8						N/A
Feature Sensitivity to Resource Develop.		VH	H	M	L		N/A
Recommended Management Class Rating: 0 1 2							
Access Distance from Road (km): _____							
Record all site data within the zone (P06=access/exit points to trail; P07=existing or potential campsites):							
Site ID Number	Site Type	Site ID Number	Site Type				

STATEMENT OF RATIONALE & COMMENTS ON REVERSE



THEME 8: DRAFT VIEWPOINTS INVENTORY CHECKLIST (includes SAR)

Forest District: _____ Viewpoint Number (data ID): _____

Date: _____ BCGS Map Number: _____

Rated By: _____

Project Name or Number: _____

ANGLE OF VIEW NUMBER		Angle of view START (degrees):		Angle of view END (degrees):		
Angle of View:	Identification Number	Start Frame Number	End Frame Number			
PHOTO ROLL/CD						
VIDEO						
VIEWPOINT DATA TYPE			VIEWPOINT DATA SUB-TYPE			
ATTRIBUTE	CODE (circle one):	ATTRIBUTE	CODE (circle one):			
Major viewpoint	V01	Stationary	Q01			
Minor viewpoint	V02	Moving, peripheral	Q02			
Site-specific viewpoint	V03	Moving, focal	Q03			
Potential viewpoint	V04	Glimpse	Q04			
SCENIC ATTRACTIVENESS RATING (example only)						
SAR FEATURES (use recreation feature codes):			SAR FEATURES:			
1.			5.			
2.			6.			
3.			7.			
4.			8.			
COMPOSITIONAL TYPE	Panorama	Feature	Enclosed	Focal	Ephemeral	
LANDSCAPE CHARACTER TYPE (Ecosection)						
SAR FACTORS:			RATING:			
1. INTERFACES	VH	H	M	L	VL	N/A
2. COMPLEXITY & VARIETY OF SCENE	VH	H	M	L	VL	N/A
3. COMPATABILITY OF ALTERATION	VH	H	M	L	VL	N/A
4. VISUAL SIGNIFICANCE	VH	H	M	L	VL	N/A
5. INHERENT SCENIC QUALITY	VH	H	M	L	VL	N/A
6. Misc.	VH	H	M	L	VL	N/A
7. Misc.	VH	H	M	L	VL	N/A
8. Misc.	VH	H	M	L	VL	N/A
9. Misc.	VH	H	M	L	VL	N/A
SCENIC ATTRACTIVENESS RATING:						

STATEMENT OF RATIONALE & COMMENTS ON REVERSE

APPENDIX 'D'

ROS and REC CRITERIA

B.C. ROS Classes and Criteria

The ROS classes, criteria and descriptions are as follows:

Primitive (P)

Dominant characteristics: very high degree of remoteness and naturalness; very little or no motorized use within area; 5000 ha or more in size; 8 km or more from a 'rough' dirt or gravel road.

Naturalness

1. very high degree of naturalness in environment; no visible modern sites or structures; isolated historic sites or structures may be present
2. very low or no evidence of other people
3. no evidence of restrictions and controls
4. generally no recreation facilities
5. very low or no site modifications (e.g. cleared brush for a campsite, stone ring fire pit may be acceptable)

Remoteness

6. very high opportunity to experience solitude, closeness to nature, self-reliance and challenge
7. very high sense of remoteness

Social Encounters

8. very low interaction with others
9. occurrence of very small party size expected

Access

10. approximately 8 km from a 'rough' dirt or gravel road (4-wheel-drive); some inaccessible ridges or barriers may be less than 8 km and still offer a 'primitive' experience (explain in statement of rationale if under 8 km)
11. very little or no motorized use within the area (e.g. little or no snowmobiling in alpine)
12. no to very low motorized water access to shores (note: based on existing use)

Size

13. approximate size of area is 5 000 ha or more

Semi-Primitive Non-Motorized (SPNM)

Dominant Characteristics: similar to the remoteness and naturalness criteria for a primitive ROS class; very little or no motorized use within area; size is 1000 ha or more; and is km or more from a 'rough' dirt or gravel road.

Naturalness

1. very high degree of naturalness in environment
2. very low evidence of other people
3. very low evidence of restrictions or controls
4. no or very low recreation facility development for signs, safety and sanitation (native materials used)
5. very low or no site modifications

Remoteness

6. high opportunity to experience solitude, closeness to nature; self-reliance and challenge
7. high sense of remoteness

Social Encounters

8. low interaction with others
9. occurrence of very small party sizes expected

Access

10. approximately 1 km from a 'rough' dirt or gravel road (4-wheel-drive)
11. very little to no motorized use within the area
12. very little or no motorized water access to shores (note: based on existing use)

Size

13. approximate size of area is 1 000 ha or more

Semi-Primitive Motorized (SPM)

Dominant Characteristics: similar to SPNM, except for greater motorized use within the area.

Naturalness

1. high degree of naturalness in environment
2. low evidence of other people
3. low evidence of restrictions or controls
4. low recreation facility development for signs, safety and sanitation (native materials used)
5. minimal site modifications (subordinate to natural surroundings)

Remoteness

6. high opportunity to experience solitude, closeness to nature, self-reliance and challenge
7. high sense of remoteness

Social Encounters

8. low to moderate interaction with others
9. occurrence of small party sizes expected

Access

10. approximately 1 km from a 'rough' dirt or gravel road (4-wheel-drive); motorized water travel parallels area and there is shore access
11. low to moderate motorized use within the area
12. low to moderate motorized water access to shores; exploration limited to shore area (note: based on existing use)

Size

13. approximate size of area is 1 000 ha or more

Natural (N) .

Dominant characteristics: the natural ROS class usually occurs within Roded Natural, Roded Modified or Rural ROS classes. It is characterized by 'small pockets (e.g. area around and including small lakes, coves) or corridors' (e.g. river or trail) predominantly natural-appearing. The existing visual condition (EVC) would be Preservation or Retention in perspective view (refer to the EVC definition within section 5.5). Minor, subordinate alterations such as rustic recreation sites or trails may be present. The size of the area is less than 1000 ha and generally within 1-3 km from a road.

Naturalness

1. high degree of naturalness in environment. Alterations to the landscape are subtle or are natural-appearing; the EVC is Preservation or Retention in perspective view;
2. low to moderate evidence of other people;
3. low evidence of restrictions or controls;
4. low to moderate recreation facility development for: signs, safety and sanitation (native materials used for construction); site modifications are usually subordinate to overall landscape; Minor; subordinate alterations such as rustic recreation sites or trails may be present; and
5. low site modifications.

Remoteness

6. moderate to low opportunity to experience solitude, closeness to nature, self-reliance and challenge
7. moderate sense of remoteness

Social Encounters

8. low to moderate interaction with others; contact with others is expected and occasionally continual, with some chance of isolation
9. occurrence of low to large party sizes expected

Access

10. generally within 1-3 km from a road; access is usually via a solitary road or walk-in trail
11. low to moderate motorized use within the area (e.g. ATV, motorboat)
12. low to moderate motorized water access to shores; exploration of shore and backshore occurs (note: based on existing use)

Size

13. less than 1 000 ha

Roaded Natural (RN)

Dominant characteristics: Roaded Natural usually occurs within or near Roaded Modified or Semi-Primitive ROS classes. There is a moderate to high degree of naturalness in surrounding environment (as viewed from a travel route). The EVC ranges from Preservation to Partial Retention in perspective view. The area is within 1 km of a 2-wheel drive road and has no size criteria.

Naturalness

1. moderate to high degree of visual naturalness in surrounding environment as seen from a main travel route (road or marine corridor); the EVC ranges from Preservation to Partial Retention in perspective view; natural fires are included.
2. low to moderate evidence of other people (off road)
3. low to moderate evidence of restrictions or controls (restricted to road and road-side area)
4. low to moderate recreation facility development for: signs, safety and sanitation
5. low to moderate site modifications (restricted to road and road-side area)

Remoteness

6. moderate to low opportunity to experience solitude, closeness to nature, self-reliance and challenge
7. moderate sense of remoteness

Social Encounters

8. low to moderate interaction with others; contact with others is expected and occasionally continual, with some chance of isolation
9. occurrence of low to large party sizes expected

Access

10. often within 1 km from a dirt, gravel or paved road (2 or 4-wheel-drive)
11. low to moderate motorized use within the area
12. low to moderate motorized water access to shores; exploration of shore and backshore occurs (note: based on existing use)

Size

13. no size criteria

Roaded Modified (RM)

Dominant Characteristics: resource land commonly found between Semi-primitive and Rural ROS classes; landscape is dominated by resource extraction and numerous roads (e.g. timber harvesting and dominant human-made structures, such as 'ski hills'). Area is often within 1 km of a 2 or 4.-wheel drive road and has no size criteria.

In the statement of rationale, indicate the type of alteration and whether it is compatible or not. For example, cabins and docks along a lakeshore may not be out-of-scale or incompatible with the surrounding landscape.

Naturalness

1. moderate to low degree of naturalness in environment (e.g. 'resource land' may be substantially modified by timber harvesting or Hydro lines/clearings)
2. moderate to high evidence of other people
3. moderate to high evidence of restrictions or controls
4. moderate to high recreation facility development for signs, safety and sanitation (rustic materials used)
5. moderate to high site modifications

Remoteness

6. low to moderate opportunity to experience solitude, closeness to nature, self-reliance and challenge
7. low to moderate sense of remoteness

Social Encounters

8. moderate to high interaction with others; contact with others is expected and continual
9. occurrence of moderate to large party sizes is expected

Access

10. often within 1 km from a dirt, gravel or paved road (2 or 4-wheel-drive); this 'modified' ROS class would also include areas dominated by resource extraction that have no roads (e.g. mining operation)
11. moderate to high motorized use within the area
12. moderate to high existing motorized watercraft use and access to shore; opportunities for exploration of shore and backshore

Size

13. no size criteria

Rural (R)

Dominant characteristic: a landscape dominated by human development and settlements associated with agricultural land (e.g. farmland, utility corridors, roadside gas stations); many interactions with other people are expected; recreation facilities may be highly developed and easily accessed.

Naturalness

1. low degree of naturalness in environment; human development and settlements associated with agricultural land (e.g. farmland, utility corridors, roadside gas stations)
2. high evidence of other people
3. high evidence of restrictions or controls
4. high recreation facility development for day use and overnight camping (variety of materials used)
5. moderate to heavy site modifications

Remoteness

6. low opportunity to experience solitude, closeness to nature, self-reliance and challenge
7. low sense of remoteness

Social Encounters

8. high to very high interaction with others
9. occurrence of large party sizes is expected

Access

10. often within 1 km from a dirt, gravel or paved road (2 or 4-wheel-drive)
11. high motorized use within the area
12. moderate to high existing motorized watercraft use and access to shore; opportunities for exploration of shore and backshore

Size

13. no size criteria

Urban (U)

Dominant Characteristics: landscape substantially altered by urban development; highly developed recreation facilities; very high number of recreation users can be expected; highly developed recreational facilities, with intensified motorized use and parking available

The urban ROS class is characterized by a substantially urbanized environment, although the background may have natural-appearing elements. The Forest Service does not inventory lands outside of its jurisdiction and consequently, the urban ROS class is seldom used. It is described here to illustrate the complete spectrum of recreation opportunities.

Naturalness

1. very low degree of naturalness in environment
2. very high evidence of other people
3. very high evidence of restrictions or controls
4. very high facility development for: signs, safety and sanitation (rustic materials used)
5. heavy to very heavy site modifications

Remoteness

6. very low opportunity to experience solitude, closeness to nature, self-reliance and challenge
7. very low sense of remoteness

Social Encounters

8. very high interaction with others
9. occurrence of very large party sizes is expected

Access

10. often within 1 km from a paved road (2-wheel-drive)
11. very high motorized use within the area
12. high to very high existing motorized watercraft use and access to shore; opportunities for exploration of shore and backshore

Size

13. no size criteria

REC Types and Criteria

There are 7 river experience class (REC) types. The REC: inventory is similar to the ROS inventory, except for the delineation of boundaries. The ROS inventory is based on land/water units (polygons). The REC inventory recognizes the surrounding viewscape but only identifies the experience class in association with river zones.

The use of motorized watercraft is possible on most rivers-and can greatly affect the river experience class. During the inventory of existing conditions, this potential is not recognized. Only current use is examined.

Motorized watercraft use can be restricted or regulated through the use of REC objectives in a recommended REC inventory.

The following is a list of the 7 REC types and criteria:

Primitive River- PR

Dominant characteristics: very high degree of remoteness and naturalness; no visible evidence of modern sites or structures; no motorized access sites; access to river is walk-in or portage; very low interaction with others; river zone is \geq 16 km and is usually upstream or downstream from a semi-primitive experience class (note: if river zone passes through a primitive 'land' ROS, it influences the criteria of the river classification).

Naturalness

1. very high degree of naturalness in environment (within the viewshed); no visible modern sites or structures (e.g. no trappers cabin, bridges, impoundment's, diversions or channel modifications)
2. very low or no evidence of other people
3. no or very low evidence of restrictions and controls
4. no or very low recreation facility development
5. very low or no site modifications (e.g. cleared brush for a riverside camping area, stone ring fire pit may be acceptable)

Remoteness

6. very high opportunity to experience solitude, closeness to nature, self-reliance and challenge
7. very high sense of remoteness

Social Encounters

8. very low interaction or no contact with other people
9. generally, the occurrence of very small party size and few boats per group is expected

Access

10. no developed access sites along the river
11. no motorized access sites; access to river is walk-in or portage; very little existing motorized use on river (access from another zone)
12. no roads visible from river

Duration of Experience

13. river zone is ≥ 16 km and is upstream or downstream from a semi-primitive experience class or if river passes through a primitive 'land' ROS, then it influences the criteria for the river classification

Semi-Primitive River- SPR

Dominant Characteristics: similar to the remoteness and naturalness criteria for a primitive river; very few visible modern or historic sites or structures; very low evidence of restrictions or controls; river zone is >8 km and is usually upstream or downstream from a primitive experience class.

Naturalness

1. high degree of naturalness in environment (within the viewshed); very few visible modern sites or structures (e.g. trappers cabin, bridges, impoundment's, diversions or channel modifications)
2. very low evidence of other people
3. very low evidence of restrictions or controls
4. no or low recreation facility development for signs, safety and sanitation (native materials used)
5. very low or no site modifications

Remoteness

6. high opportunity to experience solitude, closeness to nature, self-reliance and challenge
7. high sense of remoteness

Social Encounters

8. low interaction with other people
9. generally, very low or low party sizes expected and limited boats per group

Access

10. no developed access sites along the river
11. some motorized access sites (very few and rustic in appearance); low existing motorized use on river
12. few or no roads visible from river

Duration of Experience

13. river zone is >8 km and is usually upstream or downstream from a primitive experience class

Natural River - NR

Dominant characteristics: natural river usually occurs within or near stretches of a modified river experience class; the environment is dominantly natural-appearing (alterations to landscape equal a Retention VQO in perspective view); few visible modern or historic sites or structures; low to moderate interaction with others; contact with others is expected and occasionally continual, with some chance of isolation; river zone is approximately 1 - 8- km and is upstream or downstream from a modified river experience class.

Naturalness

1. natural-appearing environment (alterations to landscape equal a Retention VQO in perspective view); few visible modern or historic sites or structures
2. low to moderate evidence of other people
3. low evidence of restrictions or controls
4. low recreation facility development for: signs, safety and sanitation (rustic materials used)
5. low site modifications

Remoteness

6. moderate to low opportunity to experience solitude, closeness to nature, self-reliance and challenge
7. moderate sense of remoteness

Social Encounters

8. low to moderate interaction with other people; contact with others is expected and occasionally continual, with some chance of isolation
9. generally, the occurrence of small to medium party sizes expected

Access

10. no developed access sites along the river
 11. some motorized access sites (very few and rustic); low to moderate existing motorized use may occur on river
 12. roads may parallel river but are not visually evident
- Duration of Experience 13. river zone is 1 - 8 km and is usually upstream or downstream from a modified river experience class

Duration of Experience

13. river zone is 1-8 km and is usually upstream or downstream from a modified river experience class

Modified River, Incompatible Alteration - MRI

Dominant Characteristics: landscape may be dominated by resource extraction and numerous roads (e.g. timber harvesting, mining activities, Hydro dams etc.); alteration dominates and is incompatible with surrounding landscape; timber cutblocks would have an EVC of modification or greater; low to moderate opportunity to experience solitude, closeness to nature, self-reliance and challenge; river zone varies in length and is upstream or downstream from any experience class

Naturalness

1. moderate to low degree of naturalness in environment (e.g. surrounding 'resource land' may be substantially modified by timber harvesting, rangeland, mining operation etc.); alteration dominates and is incompatible with surrounding landscape; timber cutblocks would have an EVC of modification or greater.
2. moderate to high evidence of other people
3. moderate to high evidence of restrictions or controls
4. moderate to high recreation facility development for signs, safety and sanitation (rustic materials used)
5. moderate to high site modifications

Remoteness

6. low to moderate opportunity to experience solitude, closeness to nature, self-reliance and challenge
7. low to moderate sense of remoteness

Social Encounters

8. moderate to high interaction with others; contact with others is expected and continual
9. generally, the occurrence of low to large (high) party sizes is expected

Access

10. moderate to high developed access sites along the river
11. moderate to high motorized access sites; use of modern materials (cement, plastic etc.); moderate to high motorized use on river
12. moderate to high degree of roads visibility from river

Duration of Experience

13. river zone varies in length and is upstream or downstream from any experience class

Modified River, Compatible Alteration - MRC

Similar to the previous modified River experience class (MRI), except that the alteration is compatible with the surrounding landscape and the recreation experience.

Dominant Characteristics: landscape may be dominated by cottages, small industrial operations, and numerous roads; timber cutblocks may have a partial retention to modification existing visual condition (refer to section 5.0); the alteration is compatible with the surrounding landscape and the type of alteration is acceptable (e.g. historic train trestle); area is away from rural settlement areas (in backcountry); low to moderate opportunity to experience solitude, closeness to nature, self-reliance and challenge; river zone varies in length and is upstream or downstream from any experience class.

Rural River - RR

Dominant characteristics: a landscape dominated by 'rural' human development (e.g. settlements, utility corridors, agricultural land); many interactions with others; highly developed recreation facilities on or near shore; low sense of remoteness.

Naturalness

1. low degree of naturalness in environment; human development prevalent (e.g. 'open land' for agriculture, settlements, dams, diversions, fish enhancement operations..)
2. high evidence of other people and human development
3. high evidence of restrictions or controls
4. high recreation facility development for day use and overnight camping (variety of materials used)
5. moderate to heavy site modifications

Remoteness

6. low opportunity to experience solitude, closeness to nature, self-reliance and challenge
7. low sense of remoteness

Social Encounters

8. high to very high interaction with others
9. generally, the occurrence of large party sizes is expected

Access

10. may have developed access sites along the river
11. motorized access sites may be numerous, using modern materials (cement, plastic etc.); moderate to high existing motorized use on river
12. numerous roads visible, with some parallel roads, powerlines and intersecting bridges

Duration of Experience

13. river zone varies in length and is upstream or downstream from any experience class

Urban River - UR

Dominant Characteristics: landscape substantially altered by urban development; highly developed recreation facilities. very high number of recreation (shore and river) users can be expected; very low sense of remoteness; highly developed recreational facilities, with intensified motorized use and parking available.

Naturalness

1. very low degree of naturalness in environment; impoundment's, diversions, or channel modifications may be frequent
2. very high evidence of other people
3. very high evidence of restrictions or controls
4. very high facility development for: signs, safety and sanitation (rustic materials used)
5. heavy to very heavy site modifications

Remoteness

6. very low opportunity to experience solitude, closeness to nature, self-reliance and challenge
7. very low sense of remoteness

Social Encounters

8. very high interaction between river and shore users
9. generally, the occurrence of large to very large party sizes is expected

Access

10. presence of developed access sites along the river
11. motorized access sites are numerous, using modern materials (cement, plastic etc.); high to very high existing motorized use on the river
12. numerous roads are visible, with some parallel roads, powerlines and intersecting bridges; vehicle traffic may be constant

Duration of Experience

13. river zone varies in length and is upstream or downstream from any experience class

APPENDIX 'E'

**River Recreation Inventory Pilot Test
Methodology Re-write**

**RIVER RECREATION INVENTORY PILOT TEST
METHODOLOGY REWRITE
COWICHAN RIVER, NANAIMO RIVER & CHILLIWACK RIVER**

Prepared for
Ministry of Forests

by
Arpad Szatory and Bruce Holland
March 1995

1. INTRODUCTION

This study was initiated by the Ministry of Forests in order to update the outdoor recreation inventory information for river corridors. This study is a pilot project intended to test the validity and usability of the Recreation Inventory Database Attributes developed by Viewpoint Recreation & Landscape Consulting for surveying river corridors. The study area covers the Cowichan River from its source at Cowichan Lake to its terminus in Cowichan Bay, the Nanaimo River from the Nanaimo Lakes to its terminus in the ocean at Cedar, and the Chilliwack River from Chilliwack Lake to its terminus at Vedder Crossing

The objectives of the study were to complete a recreation feature inventory. The study includes:

this report, which describes the individual mapsheet characteristics.
9-1:50,000 maps showing recreation zones and features and photo references.
an album of field photographs.

2.0 INVENTORY METHODOLOGY

2.1 Introduction

The recreation inventory follows the methodology set out in the draft of Recreation Inventory Database Attributes prepared by Viewpoint Recreation and Landscape Consulting (draft Feb 20, 1995). Three main themes are being studied for river recreation values; 1) Recreation features, 2) River Experience Class, and 3) White water classification.

It is important to note that the white water is based on only a few of the possible river activities. This includes kayaking, canoeing and rafting since these are popular river sports and more information is needed to help determine their potential on rivers.

2.2 Methodology

2.2.1 Overview

The three river corridors being inventoried were first studied by using 1:50,000 maps and black and white air photos and assessment of previous recreational studies and books and personal contacts with resource people. It should be noted that most of the sections of the three rivers inventoried were already very familiar to the consultants. Most of the sections of the rivers were then paddled in white water kayaks. Kayaks offer many advantages over other types of river craft because, with experienced paddlers, white water up to grade IV can be safely navigated. Kayaks also offer the ability to stop frequently and when required for evaluating features. Lower, slower sections were paddled in a double ocean kayak since it offered greater speed and a better working platform in areas where there was no white water. Sections of the Nanaimo River and the Chilliwack River were determined to be unnavigatable from a safety point of view and accessible sections were walked and inaccessible sections were evaluated from the air. The consultants both were certified white water kayak instructors with many years of river experience which provided a consistency in evaluating and grading the white water classification. Other paddlers were consulted on various sections of the river and a third paddler was used on difficult sections as a safety backup. Photographs were taken of many viewpoints and other significant features.

Whitewater classification can be very dependent on water levels. The Nanaimo and Cowichan Rivers were paddled, during this survey, at quite high levels, the Chilliwack at a moderate level. While the whitewater was graded as it was seen, during reporting, consideration was taken for average water levels based on historic flows. As outlined in the Recreation Inventory Database Attributes report, upper and lower limits on the whitewater grading are also determined as well as optimum periods of use. Years of experience on the rivers studied as well as consulting with other experienced paddlers and guidebooks aided in the evaluation of the whitewater classification.

10 days of field work were carried out in February and early March.

2.2.2 Considerations for evaluating the river corridors.

Optimum time of year. While the whitewater classification is only a part of the total recreation inventory, it is very important for activities such as kayaking, canoeing and rafting. Therefore, it is important to consider the optimum time of year to be evaluating the whitewater classification. In our case we were quite familiar with the optimum times to be paddling the rivers studied. Guidebooks, such as Betty Pratt-Johnsons books (see references) were also used to provide optimum times for paddling various sections of certain rivers. The other consideration, of course, is that the whitewater classification can vary depending on the water level at any given time, so this must be taken into account. Historic river flow information obtained from Environment Canada's Historic Streamflow Summary of British Columbia was used, as well as, interviews with local paddlers, helped fine tune the whitewater classification.

Method of exploration. Again familiarity with the rivers being studied allowed us to choose the method of exploring many sections of the rivers. Whitewater kayaks were used for most of the survey since they offer many advantages over other types of river craft because, with experienced paddlers, white water up to grade IV can be safely navigated. Kayaks also offer the ability to stop frequently and when required for evaluating features. We chose to paddle the lower, slower sections, where there was no whitewater, in a double ocean kayak since it offered greater speed and a better working platform. Study air photos and talking to locals gave us an idea of how to explore sections that we were not familiar with. The very upper 2-3 kms of the Chilliwack was walked after talking with local paddlers to determine that there was a rough trail along this section and that from safety point of view this was the best way to survey this area. As well, the Severe Canyon section of the Nanaimo River was explored with a combination of hiking, paddling and fly over. Due to the extreme nature of the whitewater, most sections were determined to be not paddleable. Also, most of the land around this canyon is very rugged and is privately owned, so walk in access was very limited, therefore a decision to fly over the area was made to have look at the sections that we could not get to.

Safety. Of primary concern, is that the river corridor can be surveyed by kayak safely. When in doubt, we chose another method of exploration either walking or flying. Although there were only two of us actually surveying the river, we always added a third member to our party when we were paddling more difficult sections of the rivers for safety considerations.

2.2.3 Contact list

A list of people was put together which included local paddlers with a lot of experience on the rivers in their area and local Forest District Office personnel.

2.2.4 Research

The river corridors were studied ahead of the actual field work using the following information.

- 1) 1:50,000 NTS maps. (I found these to be adequate 1:20,000 may be more useful for less familiar sections).
- 2) 1:50,000 air photos. (In the future I would choose 1:20,000 photos with matching pairs, particularly for unfamiliar sections of the rivers).
- 3) Guidebooks, such as Betty Pratt-Johnson's books (see references).
- 4) Previous recreational studies.
- 5) Meetings with Vera Vukelich of Viewpoint Recreation Landscape Consulting to learn procedures and confirm methodology.

2.2.5 Supplies used

- 1) 1:50,000 NTS maps
- 2) 1:50,000 NTS map photocopies
- 3) 1:50,000 air photos
- 4) Waterproof chart case
- 5) Waterproof note book (size 10 x 16 cm) Notebook covers are hole punched and clipped to our PFD's using a light cord to prevent loss.
- 6) Waterproof camera
- 7) Film. ASA400 for dull days and darker canyon sections. 100 or 200ASA for sunny days.
- 8) Waterproof binoculars
- 10) Data Attribute Sheets
- 11) Pencils

Paddling Equipment Used

- 1) Whitewater kayaks
- 2) Double ocean kayak
- 3) Paddles
- 4) Spraydecks
- 5) Helmets
- 6) PFD's (personal flotation devices)
- 7) Appropriate clothing for conditions. (Wetsuits, Drysuits etc)
- 8) First aid kit
- 9) Throwline (1 each boat)
- 10) Towing system (1 each boat)
- 11) Prussick Loop (1 each boat)
- 12) 2 Carabiners (1 each boat)
- 13) 2 Slings (1 each boat)
- 14) Extra clothes, touque, powerbars etc in dry bag.

2.2.6 Procedure

- 1) We first broke the rivers into sections that could be paddled in a 2 - 4 hour time frame.
- 2) The river corridor for that section was sketched out onto the pages of the water proof notebooks using the NTS maps. Each page containing roughly 2 kms of river which gave lots of room for writing, notes and sketching.
- 3) Appropriate put in and take out sites were identified and shuttle vehicles organized.

- 4) Various tasks were split among the two of us. One person would record the whitewater classification and access/egress points, buildings, structures etc. The second person would record recreation features,, identify and record viewpoints and take the photographs. Frequent stops were made to confer with each other, cross check features and confirm our position on the river with the NTS map (contained in water proof chart case)
- 5) After each section was paddled, rough zones for Recreation Features, Whitewater Classification and River Experience were sketched onto photocopies of the NTS maps.
- 6) Drive back and check access/egress points from the road.
- 7) After returning from the river, the two of us would meet and go through the sections paddled, confirming our choice of zones and listing the recreation features, whitewater class and river experience class. (For future reference I would carry a laminated copy of recreation features and codes and jot these down as I went)
- 8) With some of the rough work done, we met with Vera Vukelich, of View Point Consulting to make sure we were on the right track and get an opinion on our reasoning for our classifications. As well, other contacts were consulted to get opinions on whitewater classifications and optimum times to paddle, as well as there knowledge of access/egress sites and recreation activities.
- 9) Film was processed and prints were catalogued with roll and negative numbers and mounted in an album.
- 10) Data Attribute Sheets completed
- 11) Individual maps for whitewater classification, river experience classification, recreational features and viewpoints were completed
- 12) Write report