Recreation Opportunity Spectrum Inventory

Procedures and Standards Manual

October 9, 1998

Version 3.0

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Preface

This document sets out the procedures and standards for carrying out Ministry of Forests Recreation Opportunity Spectrum (ROS) Inventories.

A recreation opportunity is the availability of the choice to participate in a preferred recreation activity within a preferred setting and to enjoy the desired experience.

The purpose of the ROS Inventory is to:

- identify, delineate, classify and record areas within the province into recreation opportunity classes based on their current state of remoteness, naturalness and expected social experience; and
- provide information about existing recreation opportunities to land use planners and resource managers to assist them in making decisions on appropriate land uses, resource development objectives and management prescriptions.

The classifying of land according to its potential to provide a recreation opportunity has a large component based on social science. The procedures and standards for doing this typically rely on a common understanding and agreement amongst recreation professionals, in keeping with public perceptions, about the nature and value of recreation opportunities. Though such procedures and standards are inherently subjective, they are generally regarded as more realistic than any methodology based on numeric measures and mathematical formulae. The ministry will seek consistency in the application of these standards through training, monitoring and auditing of contractors and staff.

The ROS classes set out and described in this inventory are based in large measure on the US Forest Service ROS classes. This acknowledges and takes advantage of the long-standing use and wide acceptance of the USFS ROS Inventory, and also facilitates data consistency and comparison across borders. However, substantial modifications have been made to adapt these standards to British Columbia conditions.

The standards set out in this document represent significant improvements over previous ministry ROS standards. These improvements include:

- decreased workloads and costs as well as increased efficiencies by:
  - improving the clarity and understanding of the procedures and standards; and
  - mapping polygons by forest district rather than by BCGS mapsheet.
- more emphasis on quality assurance through training, monitoring and auditing.

This document is one of a family of procedures and standards documents currently being developed for the various component inventories of the Recreation Resources Inventory. This document replaces Section 6 of the 1995 *Recreation Resources Inventory Standards and Procedures Draft Report* Version 1.0 and its associated addendum: *Recreation Opportunity Spectrum: Checklist Key* Version 2.0 (the "1996" standards) as the ministry's procedures and standards for the ROS Inventory.

Section 1.0 of this document introduces the ROS Inventory and its relationship to the overall Recreation Resources Inventory, recreation planning and management processes and other ROS inventories.

Section 2.0 sets out the administrative and contractual procedures for carrying out an ROS Inventory.

Section 3.0 sets out the technical procedures and standards for carrying out an ROS Inventory, including the use of the ROS Classification Form for recording collected data.

Section 4.0 sets out the implementation of an ROS Inventory.

Section 5.0 provides a list of references.

These procedures and standards will be revised and updated on a needs basis and as time and resources permit.

Comments or questions about this document may be sent to:

Ministry of Forests
Forest Practices Branch
P.O. Box 9513 Stn Prov Govt
Victoria, BC
V8W 9C2

Acknowledgments

The Forest Practices Branch appreciates the people who have collectively contributed to the development of these inventory procedures and standards.

We would especially like to thank the following:

Members of the Recreation Inventory Working Group;

Forest Region recreation officers;

Forest Region recreation inventory specialists; and,

Members of the Resources Inventory Committee.

We would also like to thank Forest District recreation staff who provided invaluable feedback, and the consulting community who undertook a number of contracts, contributing to the development of these procedures and standards.

Forest Practices Branch also wishes to gratefully acknowledge the funding provided by Forest Renewal British Columbia.

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Acronyms used in this Manual:

BCGS	British Columbia Geographic System	ROS	Recreation Opportunity Spectrum
ISDD	Integrated Spatial Data Dictionary	RRU	Recreation Resource Unit
INCOSADA	Integrated Corporate and Spatial Attribute Data	SLUP	Strategic Land Use Plan
		TFL	Tree Farm Licence
RIS	Recreation Inventory System		

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1.0 Introduction

1.1 Mandate

The mandate to develop and maintain a Recreation Opportunity Spectrum (ROS) Inventory is established in Sections 2, 3 and 4 of the *Forest Act*, and Part 1, Section 1 of the *Forest Practices Code of BC Act*. This mandate applies to all provincial Crown lands outside of parks and settled areas.

The *Forest Act* sets out the ministry's responsibility for developing and maintaining an inventory of land and forests, and assessing and classifying land, including for wilderness and recreation. The *Forest Practices Code of BC Act* defines forest resources as inclusive of recreation resources and, in turn, recreation resources as inclusive of recreation opportunities.

Section 28 (d)(ii) of the *Forest Act* requires that a Tree Farm License (TFL) management plan contain an inventory of recreation resources. Ministry policy (#1.1, TFL Inventory) stipulates that TFL licensees must carry out these inventories at their own cost and to ministry standards.

1.2 Purpose of the ROS Inventory

This document sets out the procedures and standards for carrying out ministry ROS Inventories.

A recreation opportunity is the availability of choice for someone to participate in a preferred recreation activity within a preferred setting and enjoy the desired experience.

The purpose of the ROS Inventory is to:

- identify, delineate, classify and record areas within the province into recreation opportunity classes based on their current state of remoteness, naturalness and expected social experience; and
- provide information about existing recreation opportunities to land use planners and resource managers to assist them in making decisions on appropriate land uses, resource development objectives and management prescriptions.

The ROS Inventory characterizes and represents recreation opportunities as mixes or combinations of settings and probable experience opportunities arranged along a continuum or spectrum of ROS classes. The spectrum is set out in terms of seven ROS classes as follows:

- Primitive (P);
- Semi-primitive Non-Motorized (SPNM);
- Semi-primitive Motorized (SPM);
- Roaded Natural (RN);
- Roaded Modified (RM);
- Rural (R); and
- Urban (U).

The classes that make up this spectrum are differentiated from each other in terms of differing degrees or types of remoteness, naturalness and social experience as shown in Figure 1.

P	SPNM	SPM	RN	RM	R	U

← *the most remote and natural ---------------- the least remote and natural* →
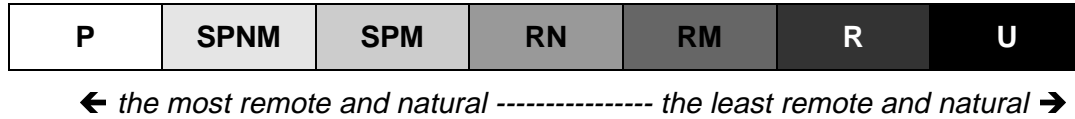
Figure 1 - Relationship between ROS classes

1.3 Clients

The primary clients of the ROS Inventory are:

- District managers (Forest Practices Code determinations);
- Operational staff (administration and referral of plans and activities);
- Land use planning tables (Regional plans, Land and Resource Management Plans, Local Resource Use Plans, etc.);
- Chief forester (Allowable Annual Cut determinations);
- Public;
- Licensees; and
- Other government agencies.

1.4 Role of this document

This document sets out the ministry's procedures and standards for the ROS Inventory. These are consistent with the overall procedures and standards for the Recreation Resources Inventory and the related recreation planning and management processes that will be set out in any revisions to the ministry's *Recreation Manual*.

This document is intended:

- to serve as the primary reference document for matters pertaining to ROS Inventory procedures and standards;
- for use by contractors, licensees, ministry staff and other persons carrying out ROS Inventory projects; and,
- as a standards and procedures manual, not a training manual.

1.5 Relationship to the Recreation Resources Inventory

The ROS Inventory is one of the four main component inventories of the Recreation Resources Inventory. The other three are the: Recreation Features, Visual Resources and Recreation Facilities Inventories, as shown in Figure 2.
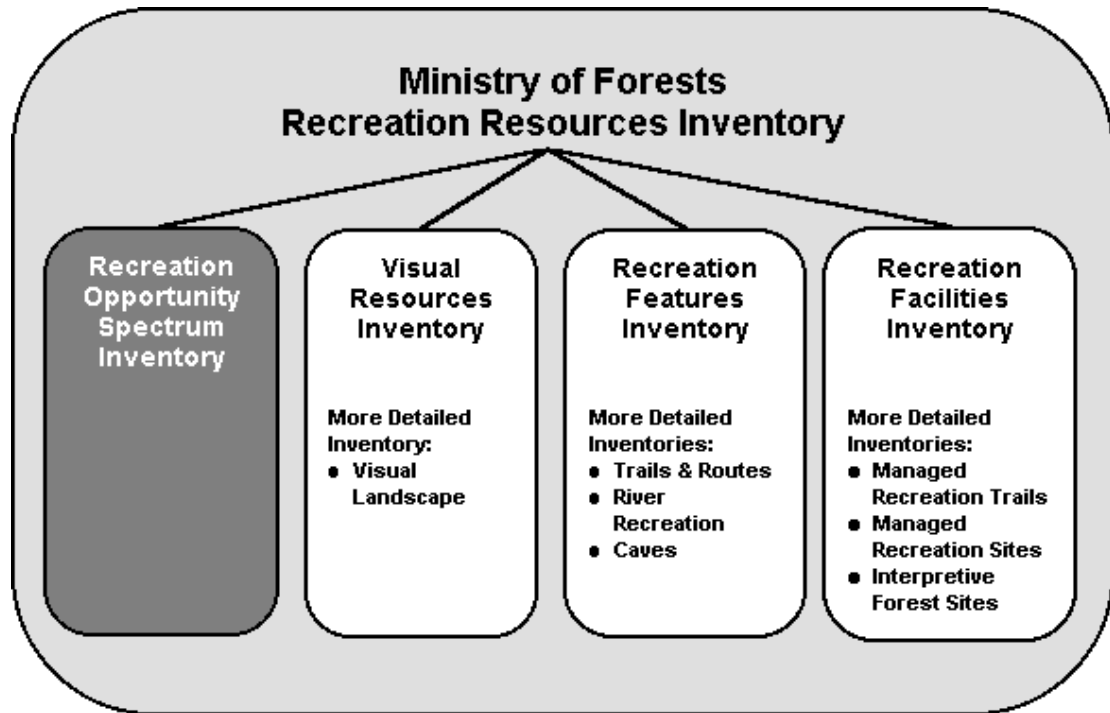
Figure 2 - Relationship of the ROS Inventory to the overall Recreation Resources Inventory

As shown above, some of these component inventories may contain more detailed inventories, as required for input into planning and/or operational initiatives. The other component inventories may provide additional information to the ROS Inventory and/or a context for determining the range of recreation opportunities, as follows:

- the Recreation Features Inventory may provide information on existing recreation activities and user expectation;
- the Visual Landscape Inventory currently serves as one of the main component inventories because the Visual Resources Inventory has yet to be defined or developed. The Visual Landscape Inventory may provide information on naturalness, as well as, information on viewer expectations; and
- the Recreation Facilities Inventory provides more detailed information on the types and conditions of existing human-made sites and structures used for recreational purposes.

1.6 Relationship to recreation planning and management processes

The relationship of the ROS Inventory to recreation planning and management processes is shown in Table 1.

Table 1 - Relationship of the ROS Inventory to recreation planning and management processes

Recreation Features Guidebook (under development)	• Provides guidelines for developing preferred, or more acceptable, management prescriptions.
District Recreation Planning (under development)	• The district recreation planning process is designed to take advantage of the data available from the ROS Inventory. • The district recreation planning process is designed to make known[1] current recreation values, including recreation settings, at the strategic planning level, and developing priorities and actions for managing recreation settings, at the operational level. • District recreation plans provide an additional vehicle for making ROS information available to planning tables, including Strategic Land Use Plans and higher level plans.
Strategic Land Use Planning *(Includes Regional Land Use Plans, PAS decisions, LRMPs, and Higher Level Plans under the FPC)*	• The ROS Inventory records recreation opportunities identified by Strategic Land Use Planning (SLUP); areas where SLUPs have been approved, and, otherwise, provides input to SLUP processes.
Recreation/ Tourism Strategies	• Recreation/Tourism strategies may use data from Ministry Recreation Resources Inventories. • The ROS Inventory incorporates data from a number of different agencies (e.g., Tourism, Highways, Parks, Environment), as appropriate.
Timber Supply Review	• The current status of the ROS Inventory will influence how recreation resources can best be incorporated into timber supply analyses. • Possible levels of inventory information are: ‣ no data or incomplete data ‣ inventory complete but not in digital format ‣ inventory in digital format Recreation opportunity spectrum classes may be incorporated into timber supply analyses using the manual, *How To Factor Recreation Values into TSR Analyses.* Data and modeling assumptions should be made accordingly by the district manager.

1.7 Relationship to other ROS Inventories

Previous ministry standards:

Previous ministry procedures and standards for the ROS Inventory are:

• Pre 1981: none;

• 1982 - 1990: Ministry directive on carrying out recreation inventory;

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[1] Under the Forest Practices Code (Section 10(c)(ii) of the Forest Practices Code of BC Act and Section 15(2) of the Operational Planning Regulation), licensees must be informed of known resources four months before a forest development plan is submitted so they can be taken into account.

- Recreation Manual: Chapter 6, August 1991 (the "1991" standards);
- Recreation Resource Inventory Standards and Procedures (Draft Report), 1995; and
- Recreation Opportunity Spectrum Inventory Checklist Key, May 1996 (the "1996" standards).

Comparison between BC and USFS standards:

Key similarities and differences between the current BC and USFS ROS standards are:

Similarities

- same ROS classes and class names; and
- ROS classes reflect similar experience classes, but BC standards tend to be offset to a more primitive rating in all cases.

Differences

- the size and distance from road criteria for Primitive and Semi-Primitive are greater in the BC standards;
- the number and level of on-site controls is fewer in BC;
- the number of expected social encounters are fewer in BC; and
- BC's definition of Roaded Natural is free of visual management objective requirements.

Key differences - between previous ministry standards:

Key differences between the current and "1996" ministry standards are:

ROS classes

- Natural has been amalgamated with Roaded Natural to match USFS standards2;

Methodology/focus

- improved clarity and understanding of procedures and standards;

Polygon delineation:

- polygons are recorded and mapped by forest district rather than BCGS mapsheet; and

Classification forms:

- the layout of the ROS Classification Form has been changed to reduce workload;

ROS polygon labels have been changed as shown in Table 2:

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[2] Sub-classes such as Pristine, Natural or Near urban may be further delineated from the appropriate ROS class at a local level under the INCOSADA definition of extended data.

Table 2 - ROS polygon label changes: 1991 - 1998

1991	1996	1998	label key
13004 02 A1 W3 E1 ajl B1 **3**	0004 **SPM**	00004 **SPM** **W**	⇐ *polygon number* ⇐ *ROS class (1996, 1998)* ⇐ *season of motorized use (1998)* ⇐ *ROS class (1991)*

Note: ROS classes have been changed from a numeric (1991) to alphabetic code (1996/98).

2.0 Administrative procedures

2.1 Roles and responsibilities

The roles and responsibilities for the ROS Inventory are set out in Table 3.

Table 3 - Roles and responsibilities for the ROS Inventory.

Participants	Roles and Responsibilities	Outputs
Branches[3]	• Administer the inventory function • Develop recommended policies for executive approval • Develop and maintain procedures and standards for data collection and data management • Provide technical advice, training and extension services • Carry out effectiveness audits of procedures and standards	• Administration • Recommended policies • Procedures and standards • Advice, training and extension services • Effectiveness audit reports
Regions[4,5]	• Coordinate inventory activities and ensure consistency between districts • Carry out inventories on behalf of districts where requested • Review draft policy, procedures and standards • Provide technical advice, training and extension services • Review inventories and accept inventories on behalf of the Chief Forester • Monitor implementation of procedures and standards	• Coordination • Inventories • Review comments • Advice, training and extension services • Recommendations • Monitoring reports
Districts[5]	• Carry out inventories (in-house or contract services) • Review inventories and provide comments to regions • inspect compliance with standards	• Inventories • Review comments • Inspections
TFL Licensees[6]	• Carry out inventories within their license area to Ministry standards (in-house or contract services)	• Inventories
Other Agencies	• Provide input to branches in the development of policies, procedures and standards • Provide input to districts and TFLs in carrying out inventories	• Input
Consultants	• Carry out inventories in accordance with contracts	• Inventories
Public	• Identify areas with various recreation opportunities • Provide input on recreation use, expectations and concerns	• Input

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[3] A number of branches work together at headquarters level. These include the Forest Practices Branch, Information Management Group, Resource Inventory Branch, and Resource Tenures and Engineering Branch.

[4] Regional and branch staff work together in providing assistance to districts.

[5] It is essential that region and district staff develop and maintain sufficient knowledge and expertise in the inventory to enable them to meet their responsibility for reviewing inventory work

[6] In some instances Forest Licensees carry out Recreation Features Inventories with non-ministry funding.

2.2 Contract administration

A *Recreation Resources Inventory Contract Management Manual* has been developed by the Forest Practices Branch to provide a number of documents and templates to assist in administering the following types of Recreation Resources Inventories:

- Visual Landscape Inventory
- Recreation Opportunity Spectrum Inventory
- Recreation Facilities Inventory (including recreation sites, forest interpretive sites, and recreation trails)

- Recreation Features Inventory
- River Recreation Inventory
- Caves Inventory.

IMPORTANT: The Ministry's *Contract Management Manual* sets out official contract management policy and procedures. The *Recreation Resources Inventory Contract Management Manual* has been developed to supplement, not replace, Ministry contract policy and procedures.

The current *Recreation Resources Inventory Contract Management Manual* provides improvements over previous versions. This enables users to adapt and combine templates in order to produce Standards Agreements or Service Contracts that meet their local needs, while maintaining the required legal terminology and a relatively consistent format across the province for the benefit all parties.

2.3 Quality assurance

The collection and maintenance of ROS Inventory data should be monitored and audited so that the data meets acceptable quality standards, by:

- Developing and maintaining provincial standards, in coordination with other policy initiatives related to Recreation Resources Inventory data collection.
- Developing and maintaining a qualified work force (staff and contractors) to carry out Recreation Resources Inventories by providing:
  - advice for inventory activities;
  - orientation sessions as required; and
  - appropriate training materials.
- Developing and maintaining standards for contract administration, including:
  - standard contract templates;
  - competency evaluations; and
  - compliance inspections.
- Monitoring and assessing the effectiveness of procedures and standards and the status of existing data, through effectiveness audits, by:
  - assessing the reliability and consistency of data; and,
  - monitoring products submitted by individual contractors.
- Maintaining the integrity of data, particularly at the data capture stage, by:
  - building automatic checking procedures into the attribute data capture processes; and
  - promoting quality assurance activities at the district (inspection), region (monitoring), and branch (auditing) levels.

3.0 Technical procedures and standards

The steps involved in carrying out an ROS Inventory project are:
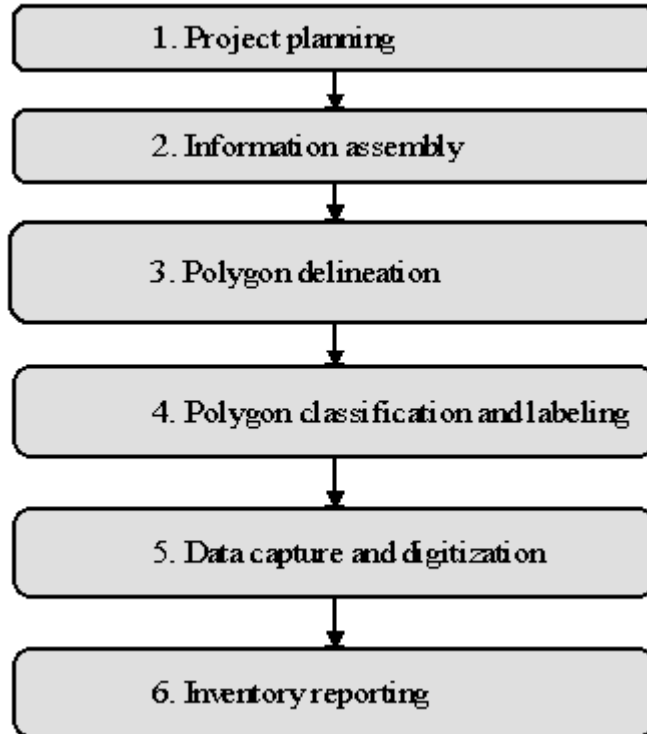
Figure 3 - Steps in carrying out an ROS inventory project

3.1 Project planning[7]

Project planning is the identification of the specific actions and expected timelines, along with the resources required, for carrying out a project from concept to completion. Project planning pertains to projects where funding is already in place. It is not ministry business planning.

A work progress plan[8] should be prepared for each ROS Inventory project. The work progress plan should provide project milestones in relation to outputs and staff time. If an

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[7] This section sets out direction and advice specific to project planning as it relates to ROS Inventory projects. It does not address project planning in general.

[8] Referenced in Article 7 of the MoF *Standards Agreement* (FS1001) and Article 6 of the *Operational Services Contract* (FS1000).

ROS Inventory project is contracted out, the work progress plan[9] should be approved by the ministry representative.

3.2 Information assembly

Information assembly is the collecting, organizing and summarizing of pertinent information needed to carry out an inventory project. An ROS Inventory project is primarily an in-office exercise which normally relies heavily on the most current Recreation Features Inventory and forest district road information. It includes primarily a collation of existing rather than new information.

Information assembly should include:

- collecting existing information from individuals and groups (e.g., government agencies, private industries, non-government organizations, as listed below);
- reviewing existing documents, where applicable; and,
- preparing a summary of findings.

Note: If the above information has recently been collected within the forest district (e.g. Recreation Features Inventory), then this existing information should be used as a basis for carrying out the ROS Inventory.

Key individuals and groups that should be consulted are:

Government:
- Ministry of Forests (forest district and region recreation staff)
- Ministry of Small Business, Tourism and Culture (headquarters staff at Corporate Services and Land Use Branch: Tourism Policy and Land use[10])
- Ministry of Environment, Lands and Parks (BC Parks district staff[11]; area conservation officers[12]; regional land administration staff)
- Ministry of Fisheries
- Federal Canadian Heritage Department/ Parks Canada (staff at district offices)
- Ministry of Energy and Mines (Petroleum Lands Branch and Geological Survey Branch)
- Ministry of Transportation and Highways
- First Nations
- Crown Corporations such as BC Hydro and Power Authority, BC Ferries, FRBC and Tourism BC

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[9] A sample map and classification form should be included for review and approval by the ministry in the early stages of a project.

[10] May have information on areas with tourism values and have listings of commercial operators.

[11] May have information on use, trends and issues within their parks and may have concerns or recommendations on areas outside of parks, as related to recreation.

[12] May have information on wildlife viewing opportunities.

- Regional Districts
- others as required

Non-government organizations (optional):
- Commercial recreation businesses and/or organizations (e.g. Cariboo Tourism Association)
- Non-profit recreation clubs and organizations (e.g. provincial: Outdoor Recreation Council; local hiking and fishing clubs)
- Forest licensees and other industry representatives (e.g., mining, fishing)
- Chambers of Commerce
- public at large (letters, submissions, etc.)
- others as required

The key documents that should be consulted are:
- the current ROS Inventory
- related Recreation Resource Inventories (e.g., Recreation Features inventories)
- other resource inventories (e.g. engineering maps with current road information)
- Ministry plans (both strategic and operational)
- other plans (e.g. strategic land use plans, higher level plans; and management plans)
- recreation use/value statistics
- related studies, reports, and periodicals
- others as required

3.3 Polygon delineation

Polygon delineation is the mapping of polygons that represent the various recreation opportunity classes.

Preparation for polygon delineation includes:

- having ready access to all the information collected in the information assembly step; and,

- becoming familiar with the procedures and standards set out in this document.

Procedures:
- using the information collected during information assembly, transferring any pertinent information such as roads[13] and structures to a 1:50,000 scale Recreation Base Map (referred to as the working map); and,

- using air photos and the working map to identify any additional items (e.g. location of seismic lines) that may not have been identified during information assembly.

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[13] Road means any surface designed for use by conventional 2 WD or 4WD automobiles that is either:

- linked to a highway through a continuous network of roads and has not been 'put to bed'; or

- not linked to a highway because it is accessible only by water or air but is presently being used for access purposes.

ROS polygons are closed line boundaries representing discrete, non-overlapping, irregular shaped areas of land and water encircling a recreation opportunity class.

Delineation factors:

Polygons should be delineated based on delineation factors that reflect the types of settings and experiences a recreationist would expect to encounter during an outdoor recreation pursuit within the polygon. The delineation factors are set out in Table 4.

Table 4 - ROS polygon delineation factors

Remoteness	Naturalness	Social Experience
Distance from road - approximate distance from the nearest road (km).	**Motorized use** - degree of motorized use within the area (includes off-road, boat and air access vehicles).	**Solitude/self-reliance** - opportunity to experience solitude, closeness to nature, self-reliance and challenge
Size - approximate size of the area (ha).	**Evidence of humans** - on-the-ground evidence of restrictions and controls, facility development, site modifications and site or trail degradation.	**Social encounters** - number of interactions with others and expected party size.

Delineation standards:

The standards for applying the delineation factors to delineate polygons are set out in Table 5. These standards, including the text descriptions for each class, are drawn from USFS standards.

Table 5 - ROS polygon delineation standards

ROS Class	Remoteness		Naturalness		Social Experience	
	Distance from road (km)	Size (ha)	Motorized Use	Evidence of Humans	Solitude/Self-reliance	Social Encounters
Primitive (P)	> 8	> 5000 ha	• occasional air access, otherwise no motorized access or use in the area.	• very high degree of naturalness; • structures are extremely rare • generally no site modification • little on-the-ground evidence of other people • evidence of primitive trails	• very high opportunity to experience solitude, closeness to nature; self-reliance and challenge.	• very low interaction with other people; • very small party sizes expected;
Semi-Primitive Non-Motorized (SPNM)	≥ 1	≥ 1000 ha	• generally very low or no motorized access or use • may include primitive roads and trails if usually closed to motorized use.	• very high degree of naturalness; • structures are rare and isolated except where required for safety or sanitation • minimal or no site modification. • little on-the-ground evidence of other people.	• high opportunity to experience solitude, closeness to nature, self-reliance and challenge.	• low interaction with other people; • very small party sizes expected;
Semi-Primitive Motorized (SPM)	≥ 1	≥ 1000 ha	• a low degree of motorized access or use.	• high degree of naturalness in the surrounding area as viewed from access route; • structures are rare and isolated • minimal site modification. • some on-the-ground evidence of other people • evidence of motorized use	• high opportunity to experience solitude, closeness to nature, self-reliance and challenge.	• low interaction with other people; • small party sizes expected;
Roaded Natural (RN)	≤ 1	N/A	• moderate amount of motorized use within the area. • may have high volume of traffic through the main travel corridor.	• moderate degree of naturalness in surrounding area • structures may be present and more highly developed; • moderate site modification. • some on-the-ground evidence of other people, • some on-site controls. • typically represent main travel corridors and recreation areas that have natural-appearing surroundings	• moderate to high opportunity to experience solitude, closeness to nature, self-reliance and challenge.	• moderate interaction with other people; • small to large party sizes expected;
Roaded Modified (RM)	≤ 1	N/A	• moderate to high degree of motorized use for both access and recreation.	• low degree of naturalness; • moderate number of more highly developed structures; • highly modified in areas; generally dominated by resource extraction activities. • on-the-ground evidence of other people and on-site controls.	• low to moderate opportunity to experience solitude, closeness to nature, self-reliance and challenge.	• moderate to high interaction with other people; • moderate to large party sizes expected;
Rural (R)	≤ 1	N/A	• high degree of motorized use for both access and recreation.	• very low degree of naturalness; • complex and numerous structures, high concentrations of human development and settlements associated with agricultural land. • obvious on-the-ground evidence of other people and on-site controls.	• low opportunity to experience solitude, closeness to nature, self-reliance and challenge.	• high interaction with other people; • large party sizes expected;
Urban (U)	≤ 1	N/A	• very high degree of motorized use for both access and recreation.	• very low degree of naturalness; • highly developed and numerous structures associated with urban development; • very high site modification. • obvious on-the-ground evidence of other people and on-site controls.	• very low opportunity to experience solitude, closeness to nature, self-reliance and challenge.	• very high interactions with other people; • very large party sizes expected;

Steps:

Using the ROS class standards described in Table 5, carry out polygon delineation according to the steps and order shown in Figure 4 and subsequent text.
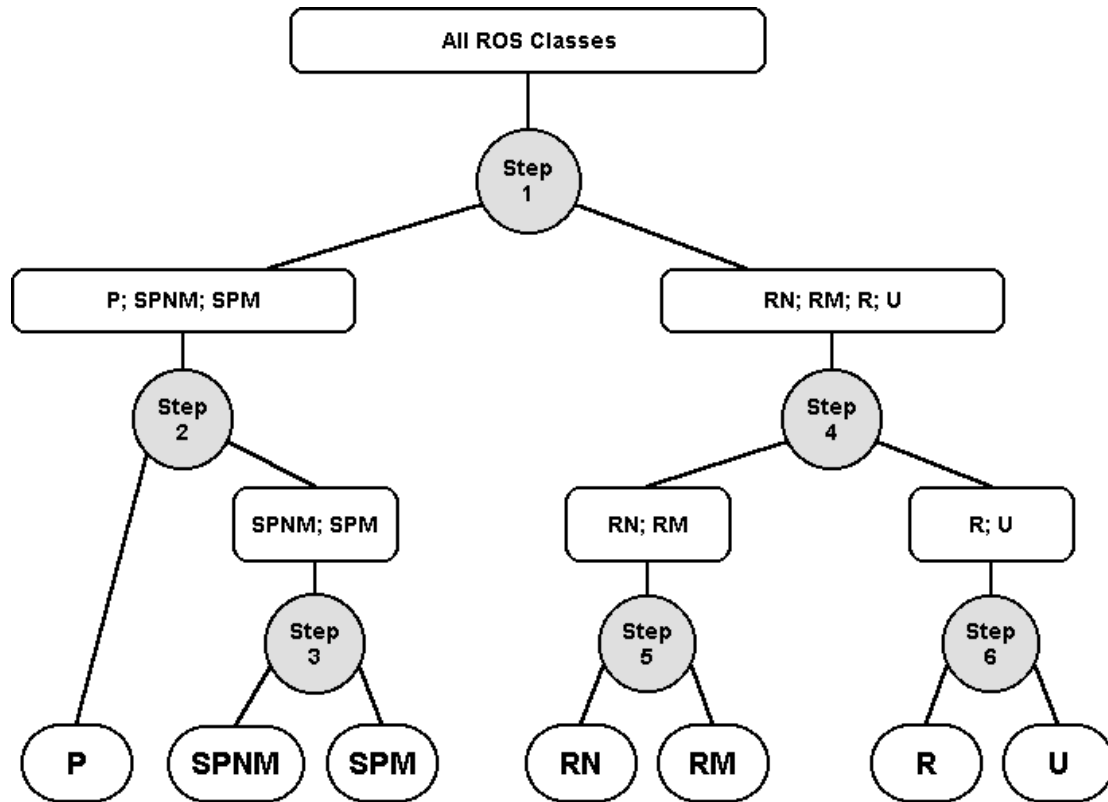
Figure 4 - ROS delineation steps

Step ①: On a 1: 50, 000 scale Recreation Base Map, separate roaded (< 1 km: RM, RN, R and U) from unroaded areas (> 1 km: P, SPNM, SPM). This is primarily based on the current road map of the study area (consultation with FS engineering staff may be required).

Step ②: Separate Primitive from SPM and SPNM by using the distance from road (> 8 km) and size factor (> 5 000 ha) and use the remaining factors to refine the boundaries.

Step ③: Identify the area which is between 1 and 8 km from any road and is > 1000 ha (this area is SPM or SPNM). Delineate SPM from SPNM by using the access factor (SPM has greater motorized use within it; i.e. snowmobile use). Use the remaining factors to refine the boundaries for each.

Step ④: Separate Roaded Modified and Roaded Natural from Rural and Urban areas. This is based primarily on the naturalness factor. Areas with modifications due to settlements and agricultural land should be classified as rural/urban. Use the remaining factors to refine the boundaries.

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Step ⑤: Separate RN from RM by identifying main travel corridors and recreation[14] areas that have natural appearing surroundings. These areas should be identified, in part, by overlaying a current visual landscape inventory map and separating out areas with an existing visual condition of visual preservation (P) or retention (R); delineation of the Roaded Natural ROS class usually involves field verification. The remaining area should be Roaded Modified.

Step ⑥: Separate Urban from Rural areas by identifying areas associated with and within urban areas the remaining area is classified a rural.

Note: Keep in mind that once the boundaries have been delineated, not all factors may be present. Lines between ROS classes should reflect topographic and vegetative differences which adequately screen out the sights and sounds of people (these differences may dictate polygon boundaries). A relatively flat terrain with low tree cover or large bodies of water may require greater distances to achieve remoteness, while sharp ridges, deep canyons or heavily wooded terrain might provide equivalent settings with less distance.

Upon completion of the initial polygon delineation there may be some areas which require further air photo interpretation and/or field verification. Refine polygon boundaries and transfer the map information onto a 'good copy' if necessary.

The *ROS Inventory Training Manual* (under development) will provide further guidance and specific examples on revising and refining final ROS polygons.

3.4 Polygon classification and labeling

Polygon classification and labeling is the classifying and labeling of polygons in accordance with the standards set out in Table 5 and the keys to the ROS Classification Form shown in Figures 5 & 6.

The ROS Classification Form is comprised of 4 sections:

Section 1: Administrative information   (Side A)

Section 2: ROS class/sub-class   (Side A)

Section 3: Season of motorized use   (Side A)

Section 4: Statement of rationale/comments (Side B)

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[14] These recreation areas should have at least a high recreation feature significance and there may be a few minor alterations which compliment the setting (e.g. rustic recreation site and boat launch).

ROS Classification Form: Side A

polygon number	map number	RRU number	ROS CLASS	Season of Motorized Use	polygon number	map number	RRU number	ROS CLASS	Season of Motorized Use	polygon number	map number	RRU number	ROS CLASS	Season of Motorized Use	polygon number	map number	RRU number	ROS CLASS	Season of Motorized Use

Forest District _____ **Rated by** _____ **Date** _____ **(yyyy/mm/dd) Project No.** _____

Figure 5 - Key to Side A of the ROS Classification Form

Section I: Administrative information

① Forest district code

Record the 3-character forest district code (see Appendix 2: Forest district codes).

② Rated by

Record the name of the person classifying the polygon.

③ Date

Record the date (yyyy/mm/dd) the polygon was actually inventoried.

④ Project number

Record the project number, consisting of the calendar year and a two-digit consecutive number beginning with one (e.g., for the second ROS Inventory carried out in 1999 in a particular district, the project number would be 1999-02).

⑤ Polygon number

Beginning with the number 00001, consecutively record a number for each recreation feature polygon within a project regardless of whether or not the polygon crosses BCGS 1:20,000 mapsheet neat lines.

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6 **Map number**

Record one BCGS map number that reflects the general location of the polygon in the district. Include leading zeros for map sheet numbers under 100 (e.g., 093G004).

7 **RRU number**

A Recreation Resource Unit (RRU) is an administrative boundary delineating broad recreation resource areas within a forest district. An RRU is used as a database reporting unit for summarizing and highlighting Recreation Resources Inventories.

Record the four digit RRU number (eg. 0001), if available.

Section II: ROS Class

8 **ROS Class**

Determine and record the ROS class of the polygon based on the delineation factors shown in Table 3 and the delineation standards shown in Table 4.

Note: The delineation factors and standards shown in Tables 3 and 4 should be used as a guide only. There may be instances where an area may be given an ROS classification which does not match one or more of the factors or standards set out for that class. For example, an area less than 8 km from a road may be classified as Primitive because of a steep cliff which blocks road access and leads to the sights and sounds of human influences being minimal. In these instances, any departures from the standards should be recorded in the statement of rationale.

Section III: Season of motorized use

9 **Season of motorized use**

Season of motorized use is an indication of the season in which motorized activities occur within the polygon.

The ROS class should be based on summer conditions (no snow). However, winter motorized use may also occur within the polygon. These varying conditions should be noted by recording: summer (S), Winter (W), Both (B) or None (N) on the ROS Classification Form to indicate whether motorized use occurs in summer , winter, both or none.

Figure 6 - Key to Side B of the ROS Classification Form

Section IV: Statement of Rationale

10   **Statement of Rationale**

A statement of rationale is an explanation or justification of the ROS classification where needed.

Using Side B of the ROS Classification Form, list and record the polygon number with its accompanying statement of rationale/comment. Additional sheets may be attached as required.

3.5 Data capture and digitization

Data capture and digitization are the recording and digital mapping of data resulting from an ROS Inventory project. The provincial standards for data capture and digitization of recreation resources inventories, including all component inventories, are:

- The *Recreation Resources Inventory Digital Data Specifications and Standards Manual*∗ -- this document includes data capture standards and a data dictionary (ISDD) – with line weights, colors, fonts, and quality assurance specifications for recreation resources inventory;
- Recreation Resources Inventory (QUAD) Base Map(s)* -- the recreation resources inventory data is drafted and digitized onto this Base Map;
- Recreation Resources Inventory legends* -- the applicable legend must surround the Base Map containing the recreation resources inventory data. (NOTE: Legends for

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∗ Version as specified in the standards agreement or services contract.

Recreation Facilities, Rivers and Caves inventories are not available from branch at the release of these standards - contact branch for advice);

- Recreation Inventory System (RIS)* -- this software is designed to capture and report on recreation resources inventory data. (NOTE: The Recreation Facilities and Rivers components of the RIS are not available from branch at the release of these standards - contact branch for advice);

- Digital labeler* -- this software is designed to query the RIS System and generate labels for recreation resources inventory data. (NOTE: The Recreation Facilities, Rivers and Caves components of the labeler are not available from branch at the release of these standards - contact branch for advice); and

- MAPS 3D projects [*] -- including Cell libraries, color tables, and plotter driver (HP650c).

3.6 Inventory reporting

Inventory reporting is the documenting of the methodology and data of a ROS Inventory project, including maps, as well as any issues or recommendations. An inventory report should be prepared for each ROS Inventory project using the following format:

Title page

Preface

Acknowledgments

Executive summary

Table of contents

List of figures

Reference Map

Include a map showing the study area and RRU boundaries, with name and number if available, and with scale bar and north arrow

1.0 Introduction

Include project objectives and background information

2.0 Methodology

3.0 Recreation resource units (if applicable)

Record the RRU number, name and a brief description; list polygons in ascending order, which may be generated from the reporting function in the RIS data entry program.

4.0 ROS Polygons

Show the RFP label which is automatically generated from the reporting function in the RIS data entry program by polygon number in ascending order, with the accompanying statement of rationale/comment beside it.

5.0 Issues and recommendations

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[*] Version as specified in the standards agreement or services contract.

6.0 References

Appendices

> ROS Inventory maps and/or digital files as specified in the Schedule 'A' Deliverables section of the Standards Agreement or Services Contract
>
> ROS Inventory Attribute Database as specified in the Schedule 'A' Deliverables section of the Standards Agreement or Services Contract
>
> Data cleaning report when specified in the Schedule 'A' Deliverables section of the Standards Agreement or Services Contract
>
> Other requirements when specified in the Schedule 'A' Deliverables section of the Standards Agreement or Services Contract

4.0 Implementation

4.1 Release of standards

The release of ROS Inventory standards will be consistent with:

- Resources Inventory Committee version control policies; and
- Ministry of Forests change-management policies.

Release of standards will be accompanied by suitable communication and documentation, resources permitting.

4.2 Training

Training will be carried out consistent with:

- Resources Inventory Committee policies;
- Ministry of Forests policies and priorities; and,
- Ministry of Forests data custodian and application custodian roles and responsibilities.

4.3 Testing

Earlier drafts of these standards have undergone preliminary testing. Further testing will be carried out through experience gained from actual use in operational settings and feedback from users.

In order to maintain the quality of the ROS Inventory data, and in view of the subjectivity inherent in this type of inventory, the ministry will, on an ongoing basis, monitor, audit and test for consistency in the application of these procedures and standards (see Section 2.3).

4.4 Rollover

Inventory rollover is the "quick fix" that may be applied to existing inventory data whenever inventory standards are changed. Rollover is normally restricted to the automated conversion of existing digital data. It is carried out in accordance with prescribed rollover rules or "logic," to enable maps, summaries and other inventory projects to be generated and displayed in the new standards. This includes formats, terminology, etc.

Inventory rollover is *not* inventory update. Inventory update is the correcting of errors and/or the application of new versus old standards to obtain new data.

Inventory rollover leads to three categories of inventory data, any or all of which may be the most appropriate to use in a particular area or application. These categories are:

old data

- data collected to old standards and displayed in old standards' format;

rolled-over data

- data collected to old standards and displayed in new standards' format

new data

- data collected to new standards and displayed in new standards' format

The rollover of existing ministry ROS Inventory data is currently being addressed through a Recreation Resources Inventory Rollover Project.

This project consists of rolling over existing data, including hard copy data, local digital data and the provinicial forest inventory database, to 1996 standards. This rollover has a significant manual component because not all existing data is in digital format or of sufficient quality to enable a fully automated rollover. Once all existing data has been rolled over to the 1996 standards, it will be ready for a fully automated rollover to these standards using the rules outlined in Table 6.

Table 6 - ROS rollover rules: 1991 - 1998

1991	1996	1998
1	P	P
2	SPNM	SPNM
3	SPM	SPM
4	N	RN
4	NR	RN
4	MR	RM
5	R	R
6	U	U
7	UA	UA

4.5 Updating of standards

These procedures and standards will be revised and updated on a needs basis and as time and resources permit.

5.0 References

Contract Management Manual, 1998, Ministry of Forests

Forest Act, R.S.B.C. 1996

Forest Practices Code of British Columbia Act, R.S.B.C. 1995

GIS: Recreation Settings Component - Recreation Opportunity Spectrum (ROS)Theme. pp. RS10 - RS19. USDA Forest Service (unpublished paper)

Recreation Manual, 1991: Chapters 6 and 11, Ministry of Forests

Recreation Opportunity Spectrum Inventory Checklist Key, Version 2.0, May 1996, Ministry of Forests

Recreation Resources Inventory Contract Management Manual, June 1998, Ministry of Forests

Recreation Resource Inventory Standards and Procedures Manual (Draft), March 1995, Vera Vukelich, Viewpoint Recreation & Landscape Consulting for Ministry of Forests

ROS Poster, USDA Forest Service

ROS Poster: Roaded Modified Shift/Acknowledgments. Warren Bacon (unpublished document)

ROS Users Guide, 1982. USDA Forest Service

The Recreation Opportunity Spectrum: A Framework for Planning, Management and Research. R.N. Clark & G.H. Stankey. USDA Forest Service. General Technical Report PNW-98. 1979

Visual Landscape Inventory: Procedures and Standards Manual, May 1997, Ministry of Forests

6.0 APPENDICES

Appendix 1: ROS Inventory Classification Form

Appendix 2: Forest district codes

Appendix 1: ROS Classification Form

Figure 7- ROS Classification Form: Side A

Forest District _____ **Rated by** _____ **Date** _____ **(yyyy/mm/dd) Project No.** _____

polygon number	map number	RRU number	ROS CLASS	Season of Motorized Use	polygon number	map number	RRU number	ROS CLASS	Season of Motorized Use	polygon number	map number	RRU number	ROS CLASS	Season of Motorized Use	polygon number	map number	RRU number	ROS CLASS	Season of Motorized Use

Figure 8 - ROS Classification Form: Side B

ROS Classification Form: Side B

Polygon Number	Statement of Rationale

Appendix 2: Forest district codes

DAR .... Arrow Forest District

DBO .... Boundary Forest District

DBC .... Bulkley-Cassiar Forest District

DCB .... Cranbrook Forest District

DCH .... Chilcotin Forest District

DCK .... Chilliwack Forest District

DCL .... Clearwater Forest District

DCO .... Columbia Forest District

DCR .... Campbell River Forest District

DDC .... Dawson Creek Forest District

DFN .... Fort Nelson Forest District

DHO .... Horsefly Forest District

DIN .... Invermere Forest District

DJA .... Fort St. James Forest District

DJO .... Fort St. John Forest District

DKA .... Kamloops Forest District

DKI .... Kispiox Forest District

DKL .... Kootenay Lake Forest District

DKM .... Kalum Forest District

DLA .... Lakes Forest District

DLI .... Lillooet Forest District

DMC .... Mid-Coast Forest District

DME .... Merritt Forest District

DMH .... 100 Mile House Forest Dist.

DMK .... MacKenzie Forest District

DMO .... Morice Forest District

DNC .... North Coast Forest District

DPE .... Penticton Forest District

DPG .... Prince George Forest District

DPM .... Port McNeill Forest District

DQC .... Queen Charlotte Is. Forest District

DQU .... Quesnel Forest District

DRV .... Robson Valley Forest District

DSA .... Salmon Arm Forest District

DSC .... Sunshine Coast Forest District

DSI .... South Island Forest District

DSQ .... Squamish Forest District

DVA .... Vanderhoof Forest District

DVE .... Vernon Forest District

DWL .... Williams Lake Forest District

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