



Province of British Columbia
Ministry of Environment
Resource Analysis Branch

RESOURCE FOLIO FOR BULLMOOSE CREEK (MAP SHEET 93P/3)

ORIGINS OF THE FOLIO

The Resource Analysis Branch, British Columbia Ministry of Environment, recently conducted resource inventories in the Northeast Coal Study Area (see location map) related to terrain (surficial geology), soils, vegetation, wildlife, aquatics, outdoor recreation, visual resources, and climate. The main products of the inventory are reports (see list of references) and 1:50,000 scale maps for each resource.

The data collected by these discipline teams is synthesized in two Environment and Land Use Sub-Committee reports (1977, 1978) on Northeast Coal development. The reports focus on how coal development proposals may affect these resources.

Although the inventories were carried out specifically for the Northeast Coal Study, the renewable resource data has application to most facets of resource management and planning. In order to make resource managers aware of the information available in the entire study area, a pilot area was selected for which a folio of maps was produced. This pilot area is the Bullmoose Creek map sheet (93P/3) as shown on the location map.

Discussions between the Resource Analysis Branch and the Omineca-Peace Regional Resource Management Committee (RRMC) introduced this RRMC to the data base available from the Northeast Coal Study. The discussions investigated ways by which this information could be presented in an acceptable and usable format. The Resource Analysis Branch originally envisioned a generalized 1:250,000 "critical areas" map which would highlight areas that have high capability for one or more renewable resources. After discussions with the Omineca-Peace RRMC, it was concluded that it would be more useful to prepare a folio of maps for one 1:50,000 scale map sheet as an example of what could be done for the remainder of the area. The broad-based information that would have been presented at a scale of 1:250,000 was considered too general by this RRMC relative to the issues that they have commonly dealt with to date.

OBJECTIVES

The general objective of this folio is to provide information which can be readily utilized by agencies as an input into regional resource planning. Development proposals which have a single objective function (e.g. coal extraction, timber removal) are often reviewed by organizations like the RRMC. These single-use objectives generally require modification in order to meet multiple-use objectives which usually take the form of constraints for a particular development.

This folio of Resource Analysis Branch data best serves (1) to help define multiple resource use opportunities for the area, and (2) to identify major environmental constraints and potential conflict areas.

The specific objectives of the resource folio for the Bullmoose map sheet (93 P/3) are:

- (1) to present resource base data (e.g. soils, aquatics), capability information (e.g. agriculture, forestry, ungulates) and some important interpretations (e.g. soil erosion hazard, flooding hazard) on transparent maps which will facilitate the overlaying of various map themes for specific uses,
- (2) to store one set of these transparent maps with the Omineca-Peace RRMC in Prince George so that all resource agencies there will have easy access to this information in the region,
- (3) to encourage other resource agencies to include information they have into the folio;
- (4) to provide the Omineca-Peace RRMC an example of what may be produced for the remainder of the Northeast Coal Study Area,
- (5) to indicate to other RRMC's and Regional Districts some of the kinds of information available through the Resource Analysis Branch which may be collated into a folio format for some other areas in the province, and
- (6) to encourage further discussions with RRMC's and Regional Districts to determine what kinds of resource information and interpretations are most appropriate to meet their requirements.

LIMITATIONS

This folio presents resource information on maps at a scale of 1:50,000. It is best suited for use as a tool for resource planning. Once a specific land use or development is identified, additional on-site investigations are required.

When using the folio, the following limitations should be kept clearly in mind.

- (1) Map units generally contain inclusions of unidentified components (due to scale) which may differ significantly from those indicated on the map.
- (2) The quality of interpretations and resource capabilities reflect information and techniques currently available. Users are encouraged to modify these when experience and new information warrants it.
- (3) Areas rated "severe" or "sensitive" do not necessarily imply that a site cannot be used for a stated objective. The use of these areas depends on the nature of the limitations, whether or not the limitations can be overcome successfully and economically, and the scarcity of good sites.

INFORMATION PRESENTED

The folio for the Bullmoose Creek map sheet consists of nineteen 1:50,000 maps which contain various base data or interpretive resource themes. These maps are briefly described below. For more information on mapping procedures and classification, refer to the resource reports listed in the bibliography. In most cases, the resource reports are needed to fully utilize the base maps.

MAP 1 depicts TERRAIN (surficial geology). It indicates the distribution of unconsolidated genetic materials, their dominant texture (if known), surface expressions, and any processes which have been or are currently modifying the surficial materials.

MAP 2 shows TERRAIN SENSITIVITY and is derived from Map 1. All active (on-going) modifying processes such as gully, snow avalanching, river channelling, failing, and severe cold-climate processes (invasion, solifluction, and cryoturbation) are indicated by shading in the appropriate terrain map units.

MAP 3 is the BIOPHYSICAL SOILS base map. The biophysical soil associations and components indicated are differentiated by integrating both physical and biological components of land. Each soil association component contains information on parent materials, texture, drainage, depth to bedrock, and soil development. The slope range for each map unit is also indicated.

MAP 4 shows SOIL DRAINAGE and is derived from Map 3. Areas with poor or imperfect drainage are identified. These areas are indicated because they affect biological productivity and engineering uses of soils. Additional derivative maps indicating depth to bedrock, slope, texture, etc. can also be prepared, if required, from Map 3.

MAP 5 is SOIL INTERPRETATIONS FOR EROSION HAZARD, FLOODING HAZARD, AND ENGINEERING SUITABILITY. Erosion hazard ratings are assessed using soil texture, drainage, and slope as the critical determining factors. Flooding hazard ratings are inferred from genetic materials and soil profile development. Soils developed on well drained, coarse-textured fluvial terraces are rated as suitable for most engineering uses. Several other soil interpretations have been prepared (see Vold 1977), most of which can also be shown on map form, if required.

MAP 6 depicts LAND CAPABILITY FOR FORESTRY. This map was prepared by the Canada Land Inventory in 1970 before the Northeast Coal Study. This map could be updated using the more recent soils and climate data.

MAP 7 depicts SOIL CAPABILITY FOR AGRICULTURE. This map was also prepared by the Canada Land Inventory in 1970 before the Northeast Coal Study. This map could also be updated using the more recent soils and climate data.

MAP 8 is entitled FOREST ZONATION/PRESENT ECOLOGICAL CONDITION. This map shows the vegetation distribution for the area. Forest zones are areas with the potential for the same climatic climax tree species. Present ecological condition units represent relatively homogeneous landscapes with regard to macrovegetation, soil, surficial material, climate and land use history.

MAP 9 is a VEGETATION SENSITIVITY map which is an interpretation of the ecological information contained on Map 8. Vegetation characteristics which infer possible erosion problems, flooding, and excessive moisture are shown. The map also indicates areas where revegetation following disturbance may be difficult. Other kinds of interpretive maps based on vegetation information are also possible (see Harcombe 1978).

MAP 10 indicates UNGULATE BIOPHYSICAL capabilities for deer, elk, caribou, goat and moose. The capability classes indicate the maximum number of animals per square kilometer per year that an area can support. Wintering areas and suspected or known movement corridors are also indicated. Sub-classes are used to indicate major limitations to ungulate use.

MAP 11 is the AQUATICS BIOPHYSICAL base map. Stream reaches are delineated and characterized with respect to fish species present or probable, stream channel characteristics, and substrate materials. Site specific stream symbols show such features as reach boundaries, known spawning locations, and chutes or cascades. Watershed boundaries are also delineated on the map.

MAP 12 is a STREAM REACH EVALUATION MAP which interprets information on Map 11. Interpretations are provided for rearing habitat, bank instability, valley wall instability, and erosion potential. The size of the valley flat and the channel width are also indicated. Additional interpretations for each stream reach are provided on a table located on the map legend.

MAP 13 indicates OUTDOOR RECREATION FEATURES. Both the extent and significance of various recreation features are shown on the map. Feature modifiers are also used for features which may be suitable for particular recreation activities.

MAP 14 shows OUTDOOR RECREATION CARRYING CAPACITY. Physical, biological, and hydrological limitations for recreation use are evaluated in determining the overall rating. The nature and severity of the limitations are also indicated.

MAP 15 provides a VISUAL ANALYSIS of the area. Visual units and visual vulnerability boundaries are delineated. Visual units are described and evaluated to determine their scenic distinction. Within these visual units, land areas are evaluated to determine their visual vulnerability to impact from linear development.

MAP 16 shows the CLIMATE STATION NETWORK in the area, and the information collected at each station. When the climate inventory is complete in 1980, maps depicting growing degree-days; freeze-free periods, May-September precipitation, climate-moisture deficit and/or surplus, snow-pack in December, February, and April, climate capability for agriculture, and climate suitability for recreation are proposed to be produced.

MAP 17 shows PRESENT LAND USE and indicates existing land use and landscape characteristics of the area as of 1977.

MAP 18 shows HIGH CAPABILITY NATURAL RESOURCE AREAS or critical areas for a number of renewable resources. High capability areas for forestry (from Map 6) and agriculture (from Map 7), high capability ungulate wintering areas (from Map 10), high value rearing habitat for fish (from Map 12), regionally and provincially significant outdoor recreation features (from Map 13), high soil suitability areas for engineering (from Map 5), and visual units with very high to outstanding scenic distinction (from Map 15) are synthesized on this map. This map indicates the main areas where renewable resource use opportunities and/or conflicts are likely to be greatest.

MAP 19 is a TOPOGRAPHIC BASE map for reference purposes.

Following is a list of maps contained in this folio and the persons responsible for the work.

Map 1	Terrain	K. Webb
Map 2	Terrain Sensitivity	K. Webb & T. Vold
Map 3	Biophysical Soils	K. Webb
Map 4	Soil Drainage	K. Webb & T. Vold
Map 5	Soil Interpretations for Erosion Hazard, Flooding Hazard & Engineering Suitability	T. Vold
Map 6	Land Capability for Forestry	R. Kowall & J. Senyk
Map 7	Soil Capability for Agriculture	W. Watt & L. Farstad
Map 8	Forest Zonation/Present Ecological Condition	A. Harcombe
Map 9	Vegetation Sensitivity	A. Harcombe
Map 10	Ungulate Biophysical	A. Stewart
Map 11	Aquatics Biophysical	E. Harding
Map 12	Stream Reach Evaluation	E. Harding
Map 13	Outdoor Recreation Features	J. Block
Map 14	Outdoor Recreation Carrying Capacity	L. Birch & J. Block
Map 15	Visual Analysis	R. Tetlow & S. Sheppard
Map 16	Climate Network Station	G. Cheesman
Map 17	Present Land Use	C. Mary Redmond
Map 18	High Capability Natural Resource Areas	T. Vold
Map 19	Topographic Base	Surveys & Mapping Branch

LIST OF REFERENCES*

Block, J. 1977. Outdoor Recreation Resources of the Northeast Coal Study Area 1976-1977. Resource Analysis Branch, B. C. Ministry of Environment, Victoria, B. C. 71 pp. plus appendices.

Ceski, A. 1979. Vegetation Resources of the Northeast Coal Study Area 1977-1978. Resource Analysis Branch, B. C. Ministry of Environment, Kelowna, B. C. In preparation.

Environment and Land Use Sub-Committee on Northeast Coal Development 1977. Northeast Coal Study - Preliminary Environmental Report on Proposed Transportation Links and Townsites. Queen's Printer, Victoria, B. C. 141 pp. plus maps and appendices.

Environment and Land Use Sub-Committee on Northeast Coal Development 1978. Northeast Coal Study - Preliminary Environmental Report 1977-1978. Queen's Printer, Victoria, B. C. 173 pp. plus appendices.

Harcombe, A. 1978. Vegetation Resources of the Northeast Coal Study Area 1976-1977. Resource Analysis Branch, B. C. Ministry of Environment, Kelowna, B. C. 46 pp. plus appendices.

Harding, E. 1978. Aquatic System Units in the Northeast Coal Study Area. Resource Analysis Branch, B. C. Ministry of Environment, Victoria, B. C. In preparation.

Horner, R. 1978. Visual Resources of the Northeast Coal Study Area 1977-1978. Resource Analysis Branch, B. C. Ministry of Environment, Victoria, B. C. In preparation.

Maxwell, R. 1979. Biophysical Soil Resources and Land Evaluation of the Northeast Coal Study Area 1977-1978. Resource Analysis Branch, B. C. Ministry of Environment, Kelowna, B. C. In preparation.

Sky, K. 1978. Outdoor Recreation Resources of the Northeast Coal Study Area 1977-1978. Resource Analysis Branch, B. C. Ministry of Environment, Victoria, B. C. In preparation.

Resource Analysis Branch, in collaboration with the Fish and Wildlife Branch 1977. Wildlife Resources of the Northeast Coal Study Area 1976-1977. B. C. Ministry of Environment, Victoria, B. C. 58 pp. plus appendices.

Resource Analysis Branch, in collaboration with the Fish and Wildlife Branch, 1978. Wildlife Resources of the Northeast Coal Study Area 1977-1978. B. C. Ministry of Environment, Victoria, B. C. In preparation.

Tetlow, R. J. and S. R. J. Sheppard. 1977. Visual Resources of the Northeast Coal Study Area 1976-1977. Resource Analysis Branch, B. C. Ministry of Environment, Victoria, B. C. 104 pp. plus appendices.

Vold, T. 1977. Biophysical Soil Resources and Land Evaluation of the Northeast Coal Study Area, 1976-1977 - Volume One. Resource Analysis Branch, B. C. Ministry of Environment, Victoria, B. C. 68 pp. plus map.

Vold, T., R. Maxwell, and R. Hardy. 1977. Biophysical Soil Resources and Land Evaluation of the Northeast Coal Study Area, 1976-1977 - Volume Two. Resource Analysis Branch, B. C. Ministry of Environment, Victoria, B. C. 197 pp. plus maps.

*The Northeast Coal Study Area 1976-1977 refers to the "core area" or northern portion of the study area as indicated on the location map. The Northeast Coal Study Area 1977-1978 refers to the "extension area" or southern portion.

NOTES

A number of background reports related to proposed townsites areas are also available from the Resource Analysis Branch. Other pertinent reports are available from the Water Investigation Branch, B. C. Ministry of Environment; Parks Branch, Fish and Wildlife Branch, and Heritage Conservation Branch of the B. C. Ministry of Recreation and Conservation, B. C. Ministry of Forests; Mineral Resources Branch, B. C. Ministry of Mines and Petroleum Resources, Canadian Wildlife Service and Inland Waters Directorate, Environment Canada. These reports are listed in the appendix of the Environment and Land Use Sub-Committee's (1978) most recent report.

Requests for additional copies of this folio, if desired, should be forwarded to the Resource Analysis Branch, B. C. Ministry of Environment, Parliament Buildings, Victoria, B. C. V8V 1X4.

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Terje Vold
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