



## PROJECT SUMMARY

Morice & Lakes IFPA projects are exploring ways to enhance forest productivity through a better understanding of factors affecting productivity, through intensive silviculture treatments, by increasing the area of productive forest land, and by improving site productivity estimates.

Ecosystem  
Management

Forest Productivity

Public Involvement

Adaptive  
Management

# Lakes Timber Supply Area Predictive Ecosystem Mapping

### Introduction

Predictive Ecosystem Mapping (PEM), using the Ministry of Forests' PEM model EcoGen, was conducted for the Lakes Timber Supply Area (TSA) with funding from the Forest Investment Account through the Morice & Lakes IFPA. In total, 108 full and partial 1:20,000 maps were ecologically mapped using the EcoGen model. This report will list the objectives of the project and describe the PEM process used to generate the ecological stratification of site series.

ods of gathering ecological inventories were created. Most of these methods combined existing base inventories with ecological knowledge of the interactions between biotic and abiotic communities to produce an ecological stratification of the land. Using improved analytical computer models allowed individuals to produce mapping across much larger tracts of land in a shorter period of time and for far less money than conventional methods. Predictive ecosystem mapping became the phrase used to describe this analytical process.

### Objectives

The purpose of this project was to produce a complete ecological coverage of the Lakes TSA using EcoGen, the Ministry of Forests' predictive ecosystem mapping (PEM) model. Having an ecological base is an important tool when managing our lands and natural resources. Ecological inventories provide forest managers with an incredible array of spatial and thematic information about biotic and abiotic communities.

During the mid-1990s the need for an ecological stratification and classification base grew. At that time a conventional means of inventory was used. Known as terrestrial ecosystem mapping (TEM), many employed this technique without fully appreciating the time, money and resources needed to complete even a small mapping project. As a result alternative meth-

The Ministry of Forests began development of a PEM model called EcoGen in the late 1990s. The model uses available geographic and inventory data combined with expert ecological knowledge to map British Columbia's biogeoclimatic ecosystem classification units. The Morice TSA successfully implemented a PEM project using EcoGen in the spring of 2000.

The ecosystem is the fundamental unit of sustainable resource management in British Columbia. Ecosystem maps are effective integrated planning tools that provide a record of the location and distribution of ecosystems within a management area. They create a framework for developing various site-specific management plans. Current large-scale ecosystem maps offer resource planners and managers more detail than older map products and land inventories. Those involved in creating sustainable forest management plans can use ecological inventories to identify



Fraser Lake Sawmills



**Morice & Lakes IFPA Project Summary**

important habitats (e.g., capability/suitability mapping, rare ecosystems) and model management effects on habitat plan reserve areas (e.g., OGMA's, FEN's), among other things. From this information forest managers are able to identify the "working forest" while still meeting biodiversity requirements.

In addition PEM mapping can be used to improve yield estimates. By linking with correlations of site series and site index (SIBEC) forest managers are better able to evaluate regional and local level forest productivity. This allows managers to set sustainable harvest levels that in turn provide economic stability for local communities.

**Results**

Table 1 is a list of mapsheets ecologically mapped under the terms of this agreement.

Mapsheet	Mapsheet	Mapsheet	Mapsheet
093e030	093f045	093k003	093k052
093e040	093f051	093k004	093k053
093e050	093f052	093k005	093k054
093e060	093f053	093k011	093k055
093e070	093f054	093k012	093k061
093e079	093f055	093k013	093k062
093e080	093f061	093k014	093k063
093e088	093f062	093k015	093k071
093e089	093f063	093k021	093k072
093e090	093f064	093k022	093k073
093e098	093f065	093k023	093k081
093e099	093f071	093k024	093k082
093e100	093f072	093k025	093k083
093f002	093f073	093k026	093k092
093f012	093f074	093k031	093k093
093f013	093f075	093k032	093i009
093f021	093f081	093k033	093i010
093f022	093f082	093k034	093i019
093f023	093f083	093k035	093i020
093f031	093f084	093k036	093i029
093f032	093f085	093k041	093i030
093f033	093f091	093k042	093i039
093f034	093f092	093k043	093i040
093f041	093f093	093k044	093i049
093f042	093f094	093k045	093i050
093f043	093k001	093k046	093i060
093f044	093k002	093k051	093i070

Table 1. List of 1:20,000 mapsheets ecologically mapped.

For each 1:20,000 mapsheet a digital ecological map depicting polygons having individual site series prediction was generated. For each of these maps an associated database (attribute file) was generated that listed all of the possible site series predictions for every polygon. All files conform to Resource Information Standard Committee (RISC) standards. Digital map information was provided in Arc Info file format. In addition plot files were generated to assist the user in creating simple hard copy map output.

Cost savings were realized by utilizing existing knowledge tables from the Morice PEM project. In a number of cases these knowledge tables were applied and/or modified for use in the Lakes

PEM project. Even with these cost saving measures considerable work was required to develop new knowledge tables for specific subzones.

**Conclusions**

A cursory reliability assessment was undertaken to assess the final PEM map product. The results of this assessment indicate that the PEM map exceeds the reliability goal of 65% at the TSA level. This means that the percentage of each site series predicted from PEM compares more than 65% of the time to the percentage of site series from statistical field sampling. For details on this assessment refer to the final knowledge table report from Laing and McCulloch Ltd.

All project deliverables meet Resource Information Standards Committee (RISC) standards for PEM mapping in British Columbia.

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**Morice & Lakes**

**IFPA**

**For More Information...**

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