FOREST INVENTORIES AND MANAGEMENT PLANS ON ABORIGINAL LANDS IN ALBERTA

NORTHWEST REGION
NORTHERN FORESTRY CENTRE

APRIL 1993

FOREST INVENTORIES AND MANAGEMENT PLANS ON ABORIGINAL LANDS IN ALBERTA

INTRODUCTION

Forestry Canada, charged with promoting responsible forest use and sustainable development, recognized the need to address information and forest management planning requirements on aboriginal lands. A program was initiated with Silvacom Ltd. in 1989, starting with the O'Chiese and Sunchild reserves, to assemble forest inventory data and develop a system for forest management planning in cooperation with individual band councils (Appendix I).

A forest inventory and management plan provides the framework for managing forest resources on a sustainable basis. The management plan is essentially a blueprint to guide the band's forestry and resource management activities. It states policies and objectives of management; documents factual information about the forest land base; and provides recommendations concerning reforestation, environmental protection, site rehabilitation, forest protection, and timber harvesting.

APPROACH

Forestry Canada (Northern Forestry Centre), in association with Silvacom Ltd., has developed a comprehensive and workable system for resource management on aboriginal lands (Fig. 1). This system serves as a framework for sound land-use planning and forest management by the band. It also results in better decisions about the allocation of federal funds for silvicultural work on federal lands.

Management strategies and operational guidelines are developed through an analysis of up-to-date forest inventory information collected with the help of band members. Non-fiber values and benefits are considered. Ideas about managing the forest resource while accommodating traditional land uses are assembled in consultation with each band's chief, council, administrator and their representatives (e.g. forestry committees). This program is a success for the following reasons:

* Forestry Canada (NoFC) recognizes the importance of maintaining proper protocol when undertaking forestry projects with each band. The chief and council are always consulted about methods, end products and band participation. Council's approval is requested before any forestry projects are initiated.

* Forestry Canada coordinates federal forestry program and promotes cooperation with other federal government departments (e.g. INAC), provincial governments, and non-governmental organizations.

* Continuous dialogue and meetings with chief and council are held during the course of each project to ensure that important issues concerning the band's priorities and land-use decisions are discussed and incorporated in the forest management plan.

* The chief and council select the individual band members who will participate in a training and employment program associated with each forestry project.

* Over several years, an integrated approach to forest inventory and management with a well-formulated, quantitative strategy for data collection, analysis and reporting has been developed. This system includes detailed project planning and control, standardized reporting and the use of a state-of-the-art Geographic Information System (GIS) for the storage, maintenance, and retrieval of information. This ensures that the latest technology is fully utilized for more efficient management of the data.

THE FOREST INVENTORY

A detailed and reliable forest inventory is essential for forest management; it provides the basic information needed for any planning undertaken by the band council. This state-of-the-art system for acquiring detailed information is compatible with federal and provincial resource inventory standards and it will easily accommodate updates of various land base attributes.

Recent aerial photos are used to stratify the productive forest land on the basis of observable stand attributes. Comprehensive specifications for vegetative inventories are used in photo interpretation and base map preparation. Forest cover type maps are constructed by digitizing the transferred base map and forest stand polygons. A computerized GIS is used to load, link, and analyze the polygon attribute data. Inventory summaries and a series of descriptive maps illustrating the distribution, quantity, and type of timber supply (by species, volume, and age class) as well as current land use patterns and wildlife habitat are generated using GIS.

A field survey program is undertaken to develop local timber volume estimates and to assess reforestation needs and opportunities. Timber cruising is conducted in cooperation with the band. Band members, who are employed for the field survey program, have an opportunity to obtain basic training in forest inventory and management procedures. Field data, collected by professional foresters and band members, is keypunched and analyzed using a sophisticated cruise compilation system. Output includes detailed reports describing the forest resource in terms of total volume and average size for each tree species, diameter distributions, sawlog population and related summary statistics. Information acquired from the forest inventory is synthesized into a comprehensive forest inventory report for presentation to the band council (including the chief and elders).

THE INTEGRATED FOREST MANAGEMENT PLAN

Information available from the forest inventory is used to establish a recommended strategy for forest management. The forest management plan is developed systematically and in close consultation with the band. Forest inventory maps and summaries are analyzed with a view to reconciling management objectives with economic opportunities, sustained yield principles, traditional land uses, and related considerations. Particular attention is given to the assessment of reforestation and site rehabilitation needs.

The Forest Management Plan consists of the following sections:

1. Introduction
2. Synopsis of the forest inventory
3. Land use planning
4. Sustained yield estimates
5. Forest management objectives
6. Commercial timber development opportunities
7. Silviculture
8. Forest protection
9. Environmental issues
10. Regulation and control
11. Strategic plan summaries

Appendix Tree and plant associations, tree planting diagrams, sample logging contract, provincial timber scaling manual and allowable cut summaries.

Included with the forest management plan is an extensive set of maps and a detailed operational report (annual operating and silvicultural plan), which provides a prescription and schedule for site preparation, tree planting, stand tending, hazard abatement, and harvesting for the upcoming year.

TRAINING AND EMPLOYMENT

The Northern Forestry Centre encourages the participation of band members in forest management and pays particular attention to training in forestry skills. Each inventory and silvicultural project includes a specially designed training program pertinent to the management activity. This is followed by on-the-job training during the forestry project on the reserve. This formal training and work experience improves each band member's employment opportunities with local government agencies and the forest industry, both on and off the reserve.

INFORMATION MANAGEMENT AT THE NORTHERN FORESTRY CENTRE

The operational system in place at the Northern Forestry Centre currently handles administrative and technical forestry information associated with reserves in Alberta. For each band, the data base includes forest inventory reports, hard copy maps, cruise compilation reports and management plans. Computerized maps for each reserve, showing various land use and forest inventory attributes are maintained in a geographic information system (see Appendix II and III). This facilitates continuous inventory updates and assists in planning resource management operations. Detailed administrative records and yearly summaries of the inventory, budget, silvicultural projects, personnel and training are stored in a comprehensive data base management system.

FEEDBACK TO FORESTRY CANADA FROM BAND COUNCILS

Response from bands where inventory and management plans have been completed has been very positive. Band councils and administrators have voiced their appreciation of Forestry Canada's efforts and assistance in forest management. It is recognized that this base line information is very useful for management decisions related to forestry and general land-use planning and, as such, is actively being used.

FUTURE DIRECTIONS

The Northern Forestry Centre will continue to complete inventories and management plans for the reserves in Alberta. Forestry Canada district offices in Manitoba and Sas katchewan, using local contractors have implemented similar approach, and will intend to complete outstanding work.

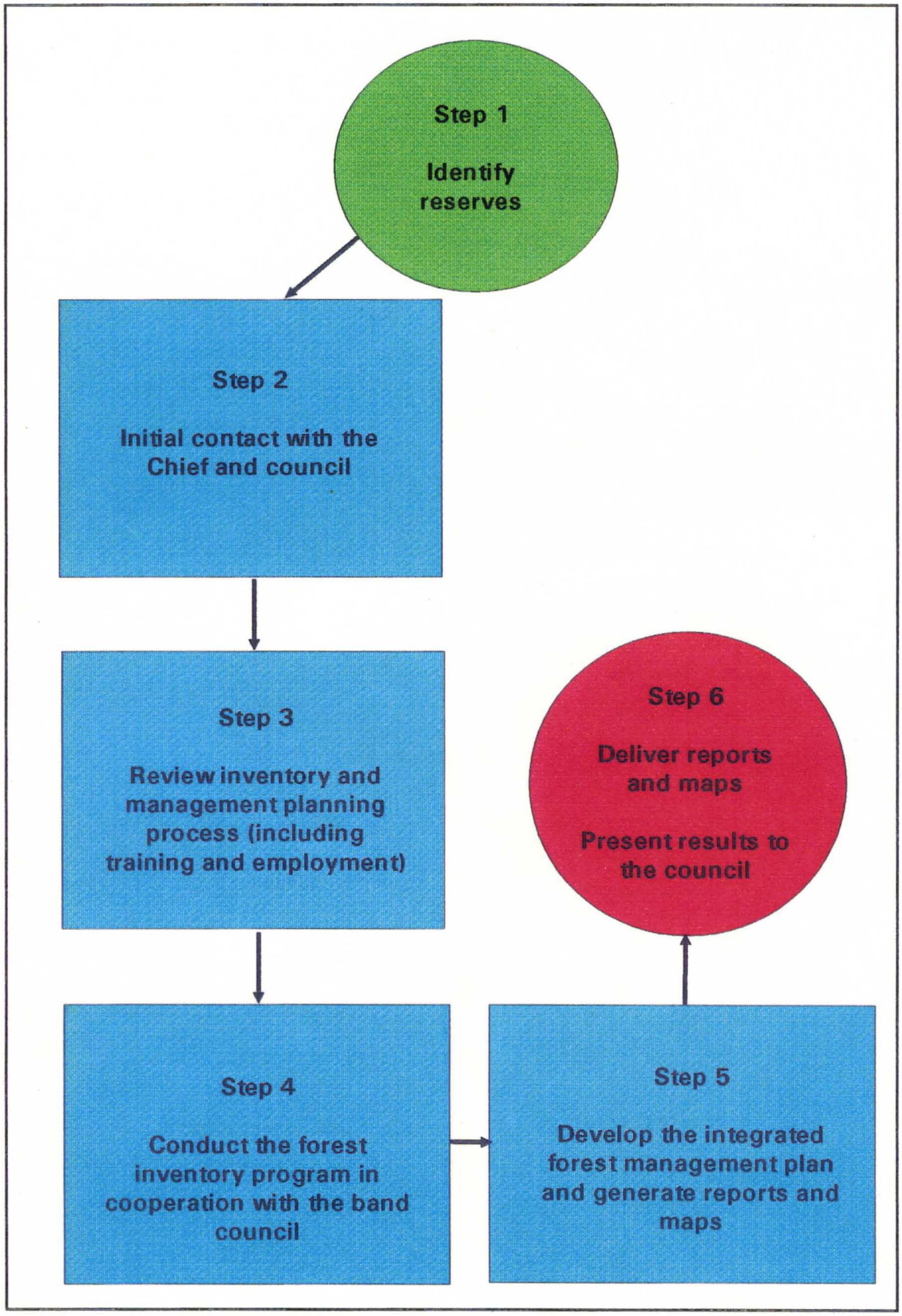
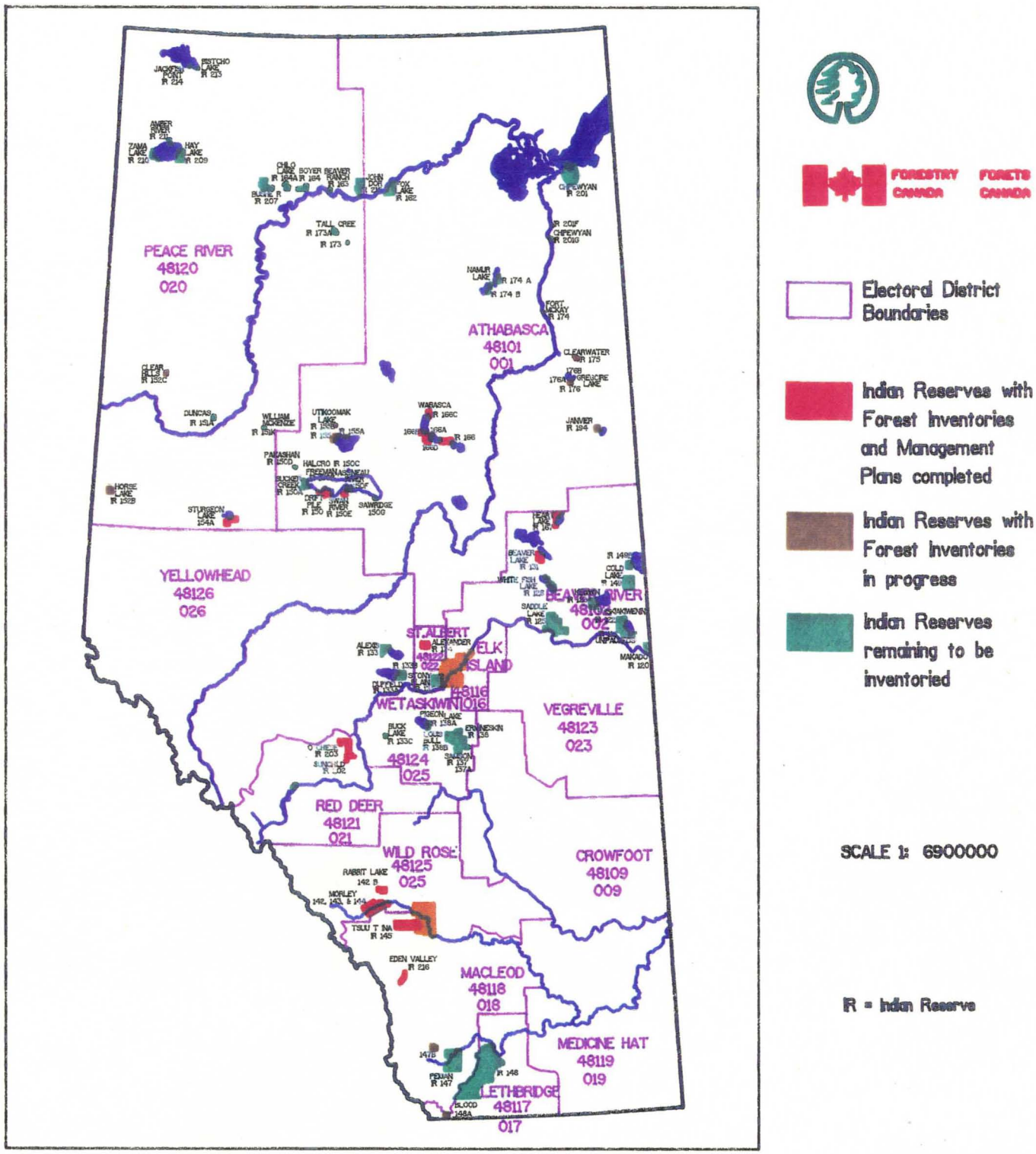
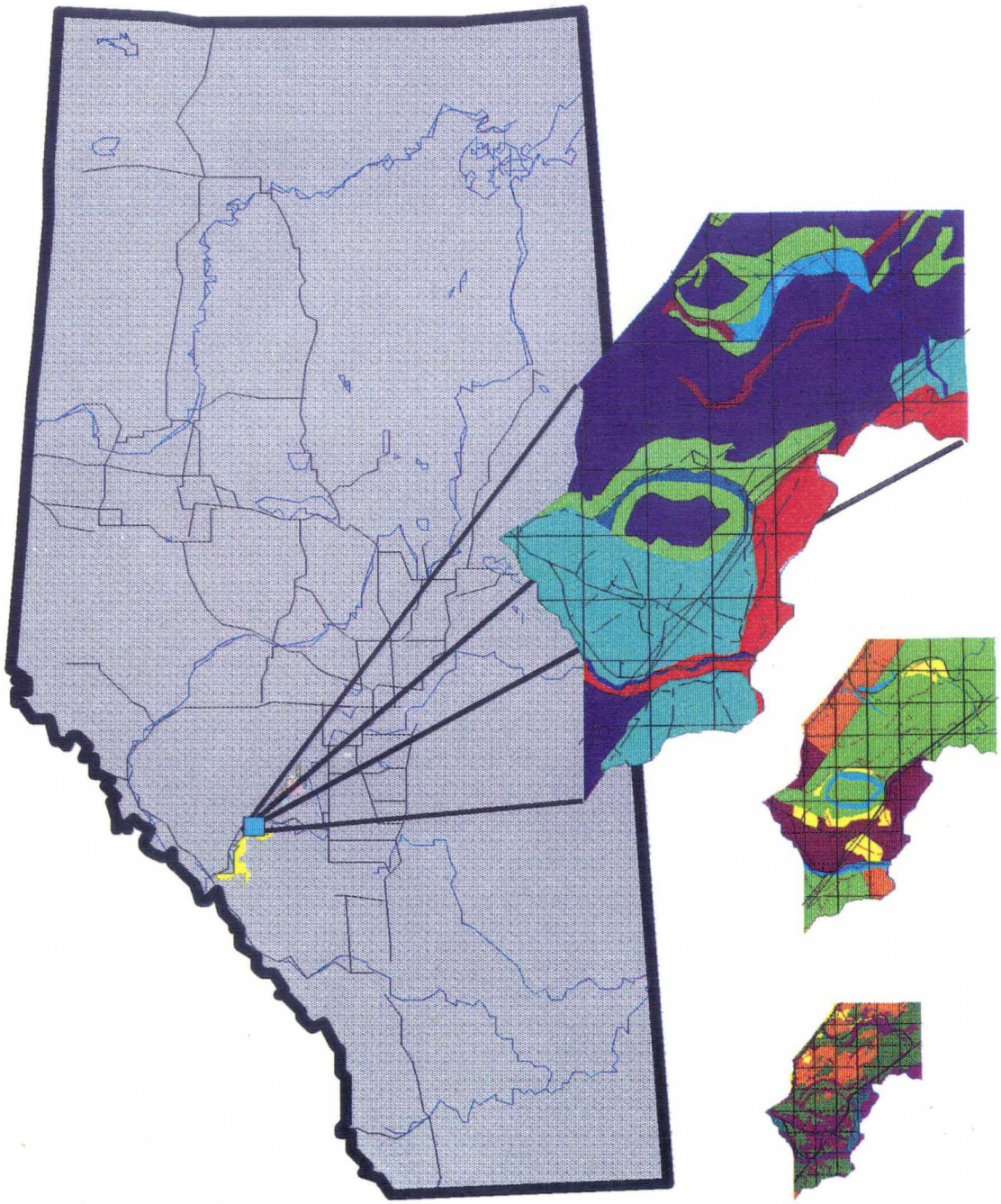


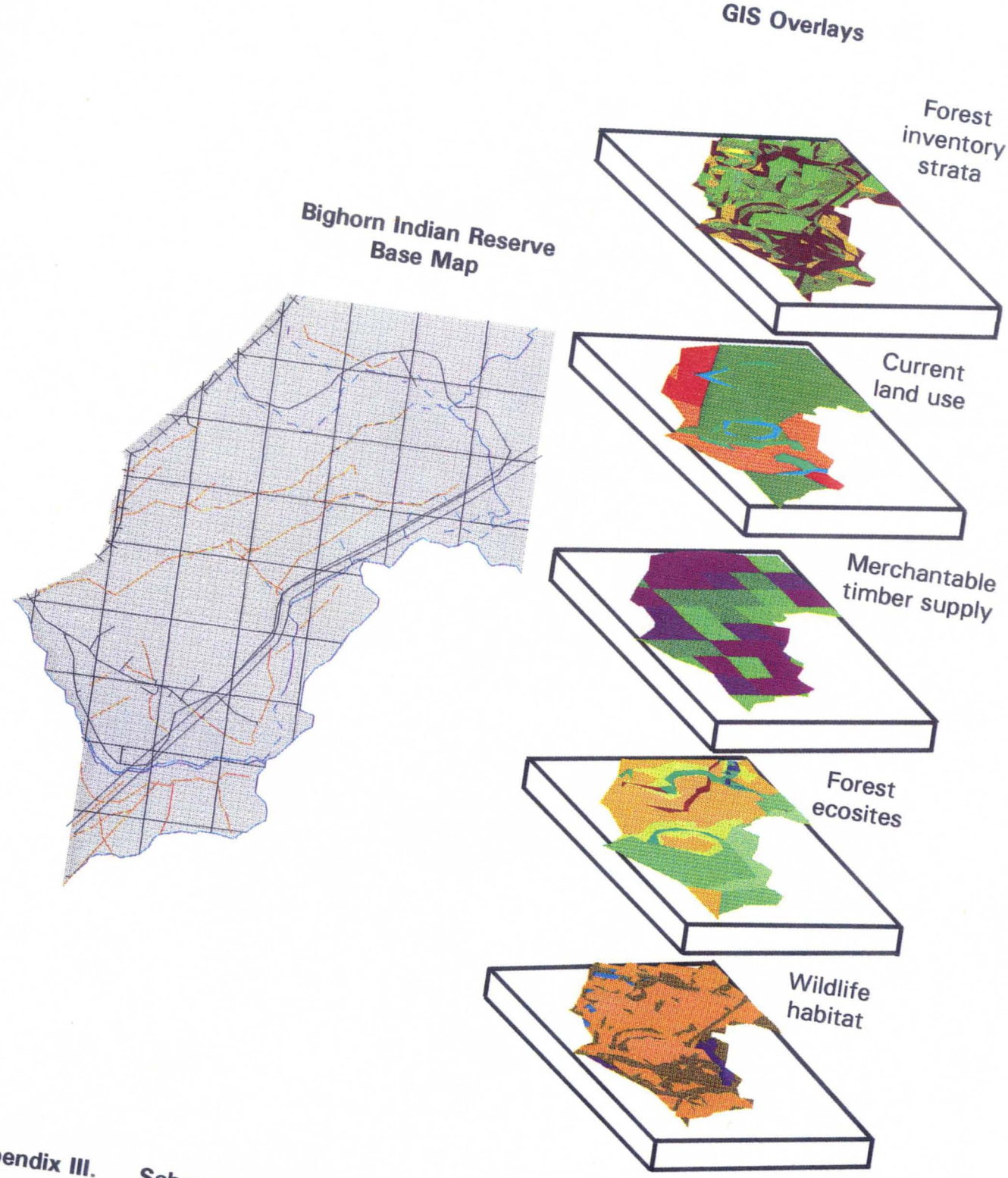
Figure 1. Flowchart of forest inventory and management planning process



Appendix I. Map of Alberta showing locations of Indian Reserves by electoral district

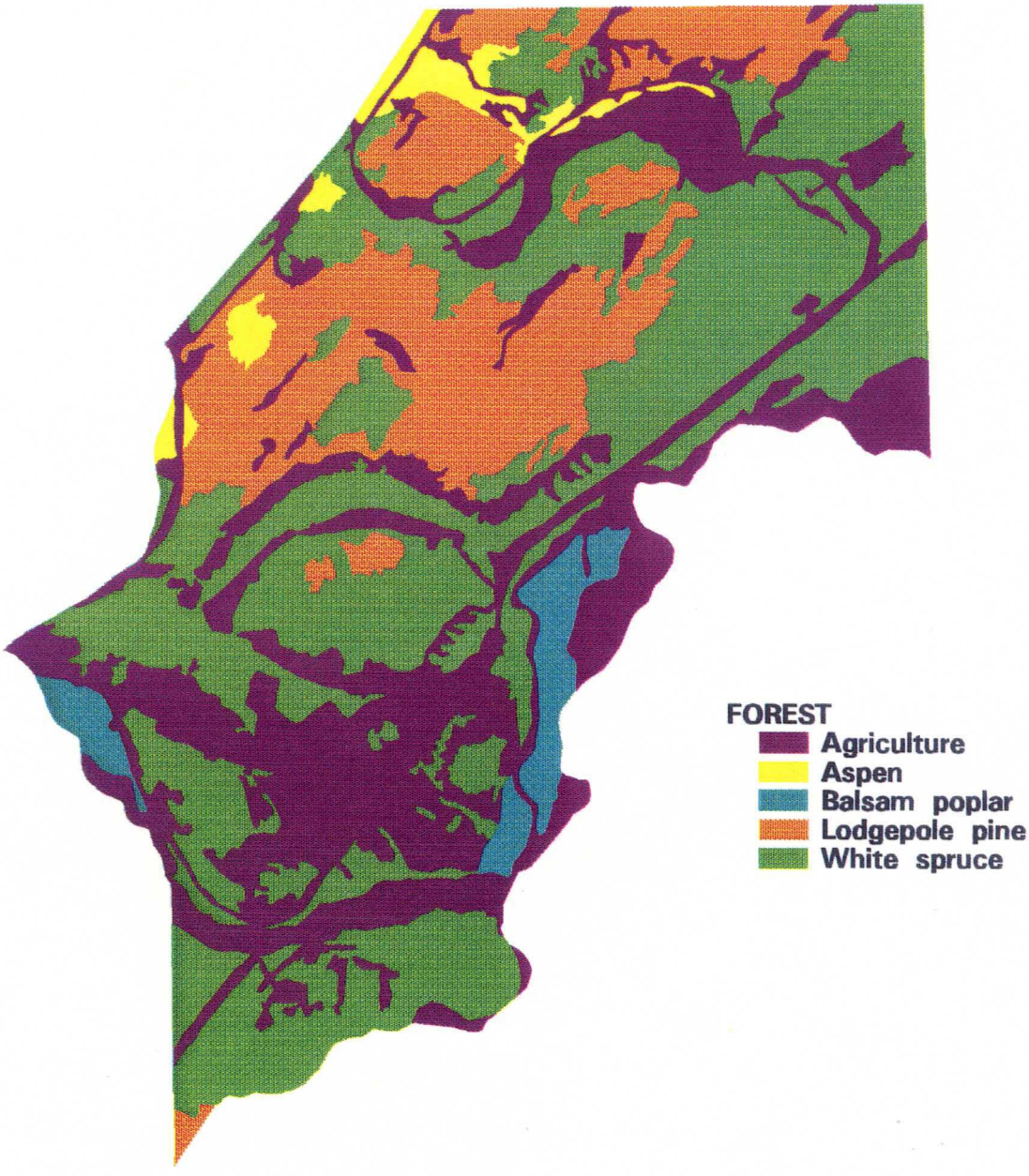


Appendix II. Exploded view of forest ecosites, land use patterns and forest inventory strata on the Bighorn Indian reserve in Alberta



Appendix III. Schematic showing several GIS-produced map overlays for integrated forest management on the Bighorn reserve

Merchantable Timber Supply
Bighorn IR 144a



Appendix IV. The distribution of primary tree species (merchantable timber supply)