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# Research, Inventory, Monitoring

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# Research, Inventory, Monitoring

## Introduction

Conservation management activities consist of three main areas: research, inventory, and monitoring. These three activities also exist on two levels: those projects that are conducted by third parties (i.e., not BC Parks), and those that are conducted by BC Parks for conservation management purposes.

Research, inventory, and monitoring programs can provide essential information that will allow conservation objectives to be accomplished, to complete gap analyses for the protected area system, to determine areas outside of protected areas that are important to species and habitats in parks and ecological reserves, to ensure cooperation with other agencies, and to provide valuable information for education programs. Basic and applied scientific research is essential to the understanding of ecosystems and their components. Conservation management includes the need for:

- *inventory* – what features are present and how they are distributed?
- *monitoring* – what changes are occurring in key ecological elements?
- *species needs information* – what is the status and requirements of species considered to be of special management significance?
- *ecological relationship identification* – what is the relationship between major components of ecosystems?
- *monitoring dynamics of change* – what studies may be needed to measure change in the ecosystem?
- *impact assessment* – what are the existing and potential direct and indirect effects on an area?

Research studies conducted in parks and ecological reserves provide the knowledge that is needed to make important conservation management decisions. Since little is truly known about the characteristics and functioning of many ecosystems found within British Columbia's park and ecological reserve system, BC Parks must undertake, encourage and accommodate a wide range of research programs.

The inventory of natural and cultural features within British Columbia's park and ecological reserve system is essential to their effective management over time. The nature and scope of inventory and assessment is especially important for evaluating conservation objectives, ranking programs, collecting baseline data, and effective decision-making.

Monitoring is an integral part of the management of natural systems and is essential if BC Parks is to meet its conservation goals. Monitoring provides an important feedback system to ensure that management actions achieve provincial, agency, and public objectives. The range of parks and ecological reserves in British Columbia offers a unique opportunity to monitor and assess the environmental health of the province in general.

## Definitions

- ***Baseline Inventory Data***

A set of data that provides the basic level of knowledge required for further analysis.

- ***Inventory***

The process of acquiring, managing, and analyzing information on natural and cultural features, including but not limited to the presence, distribution, and condition of plants, animals, soils, water, air, biotic communities, natural processes, and cultural values.

- ***Indicator Species***

A species whose population size and trend reflect the population size and trend of other species of the same system (Dunster 1996).

- ***Keystone Species***

Species that have a crucial role in supporting the integrity of the entire ecosystem and that by their effective disappearance from a system, result (indirectly or directly) in the virtual disappearance of several other species (Dunster 1996).

- ***Monitoring***

The systematic measurement or analysis of change, usually compared to a previously known baseline of data.

- ***Research***

Studies that, in general, conduct an investigation in order to test a hypothesis or answer a theoretical or management question. Inventory/monitoring/assessment activities that are conducted by BC Parks are operational and ongoing, and are not referred to as research.

## Legislation and Other Guidance

- ***Park Act (BC)***

Sections 3(1)(b)(c)(d)(e)                      management and control of natural features

Section 9    protection of natural features

Section 20

dictates the need for Park Use Permit

- ***Park and Recreation Area Regulation (BC)***

Regulations include information relative to the authorization of research and collection activities and fees for such use (nil).

- ***Ecological Reserve Act (BC)***

Section 2(a) identifies research, inventory and monitoring as suitable undertakings within ecological reserves.

- ***Ecological Reserve Regulations (BC)***

Regulations dictate the need for a permit, conditions of permit, and the requirement that research results be made available to BC Parks.

- **BC Parks Permit Administration Manual**

Outlines policy and procedures concerning the administration of park use, resource use, research, and ecological reserve permits.

- **BC Parks Management Planning Policy**

Governs the formulation of provincial park and ecological reserve management plans and management direction statements.

- **Procedures for Avoiding Infringement of Aboriginal Rights, Ministry of Environment, Lands and Parks, July 1995**

The procedures address the Ministry of Environment, Lands and Parks' policy to avoid, mitigate, or justify infringement on aboriginal rights when carrying out its mandate responsibilities, in a manner that is timely and considerate of the rights of all British Columbians. These procedures stem from the Cabinet-approved *Crown Land Activities and Aboriginal Rights Policy Framework* (1996), which applies to all provincial ministries overseeing activities and decisions on Crown land.

## **Policy – Contribution to Conservation Management**

*BC Parks' conservation management research, inventory and monitoring program will provide information that will:*

- *increase knowledge and awareness of natural and cultural features and processes in parks and ecological reserves,*
- *provide information that will assist in the formulation of management plans,*
- *monitor the status and use of natural and cultural features, and*
- *contribute to scientific knowledge.*

### **Associated Policy**

#### **Regulation**

- All conservation management research, inventory and monitoring proposals will be subjected to a clear, consistent, and systematic review process.
- All research, including inventory and monitoring projects within parks and ecological reserves conducted externally to BC Parks, must be approved by a valid research permit.
- Research, inventory and monitoring conducted external to BC Parks will be monitored by BC Parks. Project proposals and reports will be required.

#### **Conservation Management Activities Plans**

- Five-year conservation management activities plans will be developed to support BC Parks in carrying out its conservation mandate. These plans will include:
  - 1) research, inventory and monitoring necessary to address management needs and problems,
  - 2) priority ranking of these with a schedule for meeting needs,
  - 3) existing goals, funding levels, and funds currently being expended, and
  - 4) a framework for relating results to specific management actions.

#### **Academic Research**

- Academic research that does not conflict with the protection and management of a park or ecological reserve is encouraged, even if research results are not immediately applicable or specific to park/ecological reserve objectives.

### **Agency Coordination**

- Coordination with other agencies such as BC Environment, Conservation Data Centre, BC Ministry of Forests, Canadian Wildlife Service, Canadian Forest Service, Royal British Columbia Museum, and Ministry of Small Business, Tourism and Culture, Heritage Conservation Branch, among others, will ensure no duplication of research, inventory or monitoring efforts.

### **Objectives for Research, Inventory and Monitoring**

- Objectives for a specific park or ecological reserve will be identified in its management plan.

### **Restrictions**

- Manipulative or destructive research, inventory or monitoring activities are generally inappropriate within a park or ecological reserve and will be permitted only if it results in information that provides for increased protection of the feature or scientific knowledge not otherwise available.

### **Specimen Collections**

- Collections from parks and ecological reserves will be carefully monitored by BC Parks and allowed only by research permit when shown to be of critical need for research, baseline inventory, monitoring, impact analysis, or group study and not duplicated in existing collections.
- All specimens will be inventoried and BC Parks will be supplied with copies of the findings.
- Collections, including palaeontological collections, from parks and ecological reserves may be available for temporary loan to educational institutions and other agencies within, and outside, the province provided the collection will be used for a purpose consistent with BC Parks' mandate and a permit has been approved.
- All collections and specimens are retained as property of the province of British Columbia, regardless of where they are stored.

## **Policy – Priorities for Research, Inventory and Monitoring**

*Research, inventories and monitoring conducted in British Columbia's park and ecological reserve system will reflect the priorities of BC Parks' mandate.*

### ***Associated Policy***

#### **Priority Ranking**

- Priority will be given to:
  - projects that relate to park and ecological reserve conservation objectives,
  - research, inventory and/or monitoring related to population declines, and acute and chronic management problems, including but not limited to the control of exotic species, reintroduction of extirpated species, the management of small populations, visitor safety, habitat loss, ecosystem alteration,
  - endemic species and habitats with very limited distribution, including those species and habitats on endangered, threatened or vulnerable lists, and
  - applied or management-driven research over pure or academic research.
- Each significant park and ecological reserve should set a high priority for monitoring of specific keystone species, indicator species, significant features, and environmental trends.
- Priorities will be determined on an annual and provincial basis, based on the conservation management activities plan.

#### **Benchmark Areas**

- The establishment of benchmark research/monitoring areas within the BC Parks' park and ecological reserve system is considered to be of valuable importance.

## **Policy – Promotion of Research**

*BC Parks will encourage acquiring and sharing of knowledge gained through conservation research in parks and ecological reserves.*

### ***Associated Policy***

#### **Research Sites**

- Parks and ecological reserves will be promoted as sites for scientific research to contribute to the long-term protection of parks and ecological reserves and the understanding of ecosystems.
- Research is encouraged where it is related to park and ecological reserve objectives and to the identification, inventory, protection, and understanding of natural and cultural features and processes.
- BC Parks promotes the collection of knowledge of the historic use of natural and cultural features by First Nations, which can be applied to individual parks and ecological reserves.

#### **Education**

- Education is a legitimate use of parks and ecological reserves and will be encouraged where there is little or no impact on the natural and cultural values of the protected area.

#### **Research Agreements**

- Formal agreements with research facilities and universities are encouraged, as well as more continuous and consistent liaison with the scientific community.

## **Policy – Management of Baseline Inventory**

*BC Parks will assemble baseline inventory data describing the natural and cultural features under its stewardship.*

### ***Associated Policy***

#### **Information Base**

- Inventories will provide a comprehensive information base through which issues and management actions can be identified and implemented.

#### **Review of Inventory Data**

- A review of all inventory programs, undertaken at regular intervals, will ensure that the data collected remains appropriate, valuable, and consistent.
- Inventory standards will be followed in accordance with provincial guidelines (i.e., Resource Inventory Committee) to permit sharing and exchange of data.

#### **Community/Partner Involvement**

- BC Parks will promote the involvement of interested institutions, organizations, and individuals in the collection of data on natural and cultural features for parks and ecological reserves.

## **Policy - Management of the Monitoring Program**

*A thorough BC Parks' monitoring program will best determine present and future health of park and ecological reserve ecosystems. A comprehensive monitoring program will be developed to predict or detect change at regular intervals.*

### ***Associated Policy***

#### **Conservation Management Actions**

- All conservation management actions within parks and ecological reserves must be monitored for effectiveness (i.e., all management actions must include a monitoring component).

#### **Cooperation**

- Monitoring of parks' and ecological reserves' ecosystems by outside agencies of government and the private sector will be encouraged.