BRITISH COLUMBIA | BC Parks

Conservation Policy

For Ecological Reserves, Parks, Conservancies, Protected Areas and Recreation Areas

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This policy replaces all previous policy regarding conservation management.

Document Approval:

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1. Introduction

The purpose of this document is to provide guidance for the conservation of natural and cultural values on all lands within the provincial protected areas system.

BC Parks has made a commitment to the proactive stewardship of ecological integrity as expressed in *Ecological Integrity in British Columbia's Parks and Protected Areas (2012)*. Accordingly, BC Parks' Conservation Policy is founded on the concept of ecological integrity and provides guidance on how to transform this concept into practice.

BC Parks' mission is to protect representative and special natural places within the province's protected areas system for world-class conservation, outdoor recreation, education and scientific study. Outdoor recreation activities depend on safe access to natural and cultural settings and, at times, use of natural resources including vegetation/vegetation communities, fish and wildlife, geologic or hydrologic features. The practical application of these conservation policies will result in more visitors experiencing a greater variety of outdoor recreation activities with the least impact to natural and cultural values.

These policies complement BC Parks' management planning, recreation facility development and impact assessment policies, all of which aim to ensure that conservation activities contribute to the maintenance of ecological integrity across the protected areas system at a provincial, regional and protected area level.

2. Scope

This document consolidates general conservation policies (section 4) and subject conservation policies (section 5) to guide the management of all lands within the provincial protected areas system, including water (marine and freshwater), and geologic values (surface and subsurface). The general policies provide direction across the protected areas system and apply to a wide variety of activities, services and uses while the subject policies provide guidance for managing specific activities and issues.

The management and protection of terrestrial and aquatic values in British Columbia's protected areas extends to all biological organisms, cultural features and geologic attributes captured within the system. Management of many of these values can be shared with other provincial agencies, federal agencies or First Nations. To ensure coordination with other programs throughout the province, these policies complement those of other agencies while recognizing the conservation and recreation roles of protected areas managed by BC Parks.

3. Conservation Program Principles[1]

The principles are founded on the knowledge that British Columbia is the most geographically and biologically diverse province in Canada. BC Parks has statutory obligations for the protection of the natural environment; the preservation and maintenance of recreational values; and to preserve representative and special natural ecosystems, species, features and phenomena; and in conservancies an additional obligation to preserve and maintain the social, ceremonial and cultural uses of First Nations. BC Parks therefore, has a commitment to protect, present and manage, for all time. the natural and cultural heritage conserved in the provincial protected areas system. The lands, and cultural and natural values which are protected in British Columbia's protected areas system are dedicated to the people of British Columbia, Canada, and the world.

BC Parks will uphold this trust by:

1. Conserving and managing representative examples of British Columbia's ecosystems within the provincial protected areas system designated by government.
2. Maintaining essential ecological processes and variety in nature through the conservation and management of complete and functioning ecosystems.
3. Conserving variety in nature (biological diversity) at all levels, giving rare, threatened, and endangered species special management attention.
4. Showing leadership in cooperation and coordination with other agencies, aboriginal people, and the public to protect and manage lands and natural and cultural values within, and adjacent to, the province's protected areas system.
5. Recognizing a limited knowledge and understanding of ecosystems, natural processes will be allowed to predominate whenever possible.
6. Encouraging environmental learning and the sharing of knowledge within and between BC Parks' staff and the public, and working toward the resolution of issues through conservation.
7. Giving priority to conservation in BC Parks' planning and management through: environmental evaluation, sound decision making, and by encouragement and support of research and education.
8. Respecting aboriginal peoples' traditional harvesting and cultural activities in the protected areas system, and seeking a special relationship honouring their cultural heritage.
9. Practicing recycling, re-using, and reducing consumable goods and products in all aspects of protected areas operations, and selecting

[1] Conservation Principles, first published in 1996, were developed to guide BC Parks in its management of the natural and cultural values in British Columbia's protected areas system.

environmentally friendly products and practices whenever possible.

4. General Policy

The following general policy statements apply to all provincial protected areas at the protected areas system level. They provide the high-level policy framework under which more detailed subject policy can be applied.

4.1. BC Parks will manage protected areas in the context of the broader landscape level ecosystem composition, structure and function.

The protected areas system contributes to ecological integrity across terrestrial and aquatic (freshwater and marine) landscapes. Protected area managers must consider landscape level ecosystem composition, structure and function in order to be effective in meeting long-term conservation and recreation objectives for protected areas. The role of the protected areas system in landscape management requires that BC Parks participates in activities that support provincial, national, and international conservation initiatives.

Effective management of ecosystem processes and ecological restoration requires an understanding of their landscape context.

BC Parks' definition of ecological integrity provides a scaled approach to conservation management. Most of the area protected in the system contributes to ecological integrity from very large protected areas complexes to sites that protect complete ecological units. The approach recognizes that some protected areas provide only small contributions to ecological integrity, while providing quality outdoor recreation opportunities.

4.2. Protected areas planning and operations will incorporate adaptation to future climates.

Climate change, an accelerating driver of ecosystem processes, affects every aspect of protected area management. Management actions that support natural resilience and adaptation to climate change will create the best opportunity for species and ecosystems to persist into the future.

BC Parks will consider climate change adaptation in management plans and protected areas operations to support the conservation of terrestrial and aquatic ecosystem processes, sensitive species and ecosystems, cultural values and geologic and hydrological processes. BC Parks will train staff to ensure that they have knowledge of climate change adaptation principles.

Protected area infrastructure development and maintenance plans will consider climate change trends, and identify actions that are adaptive.

4.3. Natural processes will prevail unless they threaten human safety or the existence of a species or ecosystem of conservation concern.

Naturally occurring ecosystem processes are important for shaping ecosystems. These include: natural disturbances (e.g., fire, disease, wind, storm-surge, floods, etc.); geomorphic processes (e.g. landslides, avalanches, lake turn-over, etc.); geologic and hydrologic processes (e.g., soil development, stream dynamics and shoreline processes, etc.); herbivory (grazing dynamics); population dynamics; predation; and natural succession.

The protected areas system will be managed to maintain ecological, geological and hydrological processes in as natural a state as possible. Emphasis will be placed on supporting natural processes at the landscape and protected areas system level to support evolutionary processes.

Deliberate habitat manipulation in protected areas may only occur under specified circumstances (see Section 5.9).

4.4. British Columbia's protected areas system will be managed to represent the diversity and dynamics of the geologic and hydrologic phenomena across the province's physical landscapes.

Geologic and hydrologic features are basic elements of all protected areas. They are predominant factors in determining scenic and recreation qualities and play a critical role in providing the structural foundation for biotic systems. Geologic features, often overlooked but critical to the maintenance of ecological integrity, are the foundation of soils and soil development processes.

BC Parks will manage geologic, hydrologic and soil features in a natural, undisturbed condition, allowing natural processes to continue uninterrupted, and will protect and preserve palaeontological features extant within British Columbia's protected areas system.

4.5. Representative and special feature examples of the province's cultural heritage will be protected within the protected areas system.

BC Parks plays an important role in protecting and conserving cultural heritage. Effective stewardship of cultural heritage involves a number of different government agencies and non-governmental organizations. BC Parks will recognize and utilize this expertise when contemplating conservation measures for cultural heritage features found in British Columbia's protected areas.

4.6. British Columbia's protected areas system will be managed to conserve biological diversity at the genetic, species and ecosystem level.

BC Parks recognizes the important role played by biodiversity in providing the building blocks for evolution, particularly during times of rapid change. The more variety maintained at the genetic, species and ecosystem level, the more options there are to adapt to an unknown future.

4.7. Management priority will be given to species and ecosystems of conservation concern.

Species and ecosystems of conservation concern are either naturally rare or diminished due to human activities. BC Parks relies on impact assessments to inform decisions related to activities that may affect species and ecosystems of conservation concern.

4.8. Conserving ecological integrity and protecting cultural heritage is the primary objective of managing the protected areas system.

Outdoor recreation opportunities depend on access to natural and cultural settings. In combination with management planning, recreation facility development and impact assessment, these conservation policies allow for high quality outdoor recreation opportunities while serving to maintain ecological integrity at the protected areas system level.

These policies do not preclude the use or modification of nature for specific recreation opportunities, sustainable use in conservancies, or for issues related to human health and safety. At the same time, permanent or temporary closures of selected areas are an appropriate means of reducing or eliminating undesirable impacts of human use on natural or cultural features, even if such closures affect visitor use or protected area operations.

4.9. The protected areas system will be managed to maintain a range of terrestrial and aquatic (marine and freshwater) habitats closed to consumptive uses.

The BC Parks approach to managing for ecological integrity provides for a scaled approach. Where protected areas are managed for a high degree of ecological integrity BC Parks will identify representative habitats and close these to consumptive uses.

4.10. Invasive species will be managed or controlled to protect ecosystem health, human health and biological diversity.

Active management of invasive species will be considered a priority where a substantial impact on the ecosystem or on human health and safety in high-use areas is evident (or likely), and successful control can reasonably be expected without adverse impacts (e.g., loss of native species, impacts on human health).

4.11. BC Parks will work with other land management agencies to limit cross-boundary adverse impacts.

Many of the values within protected areas are sensitive to activities that occur beyond the protected area boundary. BC Parks will provide other land and resource management agencies with information on protected area values and work collaboratively to manage cross-boundary impacts. Conversely BC Parks' will

ensure that protected areas operations do not adversely impact broader landscape values (e.g. species and ecosystems of conservation concern that occur outside protected areas).

4.12. BC Parks will encourage the acquisition and sharing of knowledge gained through conservation research, inventory and monitoring in protected areas.

Research, inventory and monitoring programs can provide essential information that will allow BC Parks to: manage human impacts, manage for conservation objectives, complete gap analyses for the protected areas system, determine areas outside of protected areas that are important to species and habitats in protected areas, ensure cooperation with other agencies, and provide valuable information for education programs. Basic and applied scientific research is essential to the understanding of ecosystems and their components.

Once knowledge is acquired, it must be effectively communicated within BC Parks and to a wide variety of partners stakeholders and the public.

5. Subject Policy

The following subject policy statements should be interpreted and applied in the context of the above general policies, and must be considered by BC Parks staff during the day to day management of protected areas.

5.1. Ecosystem-Based Planning and Management

Ecosystem-based-management (EBM) is an approach to managing human activities that seeks to ensure the co-existence of healthy, fully functioning ecosystems and human communities. Implementing EBM strategies provides an effective means of achieving the BC Parks conservation mandate.

Where complex conservation and recreation management issues occur an EBM plan will help set comprehensive direction.

Further guidance can be found in the Ecosystem-Based Planning Guide.

5.1.1. EBM plans may be prepared to guide management actions and will reflect the primary importance of ecological processes and the maintenance of ecological integrity.

5.1.2. BC Parks will jointly develop and implement management objectives with adjacent land and resource managers where beneficial.

5.1.3. BC Parks will collaborate with provincial, national and international agencies on joint conservation initiatives.

5.2. Climate Change

BC Parks will make use of the best available landscape level inventories to ensure management activities support climate change adaptation and resilience and to maintain analyses of the representation, replication and connectivity status of the protected areas system.

5.2.1. Some protected areas will be managed as naturally regulated benchmark areas within which the effects of environmental change on biological diversity will be monitored.

Normally, a protected area management plan would consider whether or not management as a natural benchmark site is an appropriate role for a protected area. Ecological Integrity, conservation risk assessment data and other inputs (such as existing use patterns and established monitoring stations) can aid in identifying which protected area sites are suitable for this role.

5.2.2. Assisted migration will be considered if best available science indicates it is integral to ecological integrity and climate change adaptation.

5.3. Species and Ecosystems of Conservation Concern

Direct management of ecological processes related to species of conservation concern will normally be undertaken where recommended by species recovery plans (in accordance with federal *Species at Risk Act*) or an individual protected area's EBM plan (where applicable). Staff should also rely on provincial species management plans for guidance.

5.3.1. Species management will be applied only where species or ecosystems of conservation concern are threatened and where this management will not jeopardize other ecosystem components.

5.3.2. Species and ecosystems of conservation concern will receive high priority for inventory, assessment, and protection in protected area planning and management.

Old-growth Forest

5.3.3. Old-growth trees and stands will be managed with an emphasis on protection.

5.3.4. Development of visitor facilities in old-grow forests will only occur as directed in an approved management plan.

5.4. Fish and Wildlife Management

The management and protection of fish and wildlife in British Columbia's protected areas system extends to all vertebrates and invertebrates, terrestrial, freshwater, and marine. Management of fish and wildlife is a shared responsibility within British Columbia. To ensure coordination of fish and wildlife programs throughout the province, these policies complement those of other agencies that manage fish and wildlife, yet recognize the conservation role of protected areas managed by BC Parks.

When required to achieve the objectives of a protected area management plan, fisheries or wildlife plans will be prepared. These plans will reflect conservation principles, including the importance of maintaining ecological processes and ecological integrity.

Human-Wildlife Interactions

A human-wildlife conflict prevention plan may be prepared to direct the management of chronic wildlife-human conflicts. Emphasis will be placed on protected area-wide visitor use management to reduce opportunities for negative human-wildlife interactions.

5.4.1. Public safety will be the primary consideration in dealing with negative wildlife-human interactions.

5.4.2. Permanent or temporary closures of selected areas are an appropriate means of reducing or eliminating undesirable impacts of human use on fish and wildlife.

5.4.3. Bear-people conflicts will be managed in accordance with the BC Parks' Bear–People Conflict Prevention Plan.

Consumptive Use

Consumptive use of fish and wildlife must occur in a sustainable manner without compromising public safety or conservation objectives.

5.4.4. In some protected areas, hunting or fishing may be necessary to reduce un-natural population levels or to reduce or eliminate invasive species.

5.4.5. Consumptive use of fish, wildlife and vegetation is not permitted within ecological reserves.

5.4.6. Consumptive use of fish and wildlife will be managed according to protected area objectives related to: health and safety, conflicting uses, quality of experience or ecological integrity objectives.

In setting management objectives for protected areas BC Parks will plan for and manage consumptive use to provide high quality outdoor recreation and to achieve world-class conservation. BC Parks recognizes that harvest rates in most protected areas will be consistent with adjacent lands. For those protected areas where managing for ecological integrity plays a dominant role, BC Parks will work to achieve harvest levels that are more conservative than in adjacent areas.

5.4.7. Fishing derbies (contests where commercial and competitive aspects are emphasized to the detriment of fish or the fishing experience) are not permitted in protected areas.

5.4.8. Artificial enhancement of fish (including shellfish) and wildlife populations for consumptive purposes within parks, conservancies, recreation areas and protected areas will not be permitted unless specifically stated in an approved management plan or land use plan. It is not permitted at any time in ecological reserves.

5.4.9. The introduction or retention of non-native species to support consumptive activities is not permitted in protected areas.

Removal of Fish and Wildlife

5.4.10. Removal of fish (including fish eggs) and wildlife from a protected area, for transplanting or other uses outside the protected area may be permitted if the natural level of fish and wildlife diversity within the protected area is maintained and such action is required to re-establish or maintain a natural level of fish or wildlife diversity.

Exotic Pack Animals

5.4.11. Horses, mules, donkeys, llamas, and alpacas may be allowed as pack animals in protected areas under specified conditions and in accordance with protected area management plan(s). Any other species (e.g., goats, sheep, and camels) may not be used as pack animals in protected areas.

Conditions that must be met include:

- exotic pack animal use will be limited to designated zones or trails;
- veterinary certification of animal health; and
- current knowledge of disease and wildlife interaction risks associated with their presence.

5.5. Invasive Species

Invasive plant, fish and wildlife species will be managed or controlled as necessary to protect ecosystem health, human health and biological biodiversity. Active management of invasive species will be considered a priority where an adverse impact on the ecosystem or on human health and safety in high-use areas is evident (or likely), and successful control can reasonably be expected without adverse impacts (e.g., loss of native species, impacts on human health).

Staff will identify and report invasive species (both plants and animals). BC Parks will participate in the Early Detection and Rapid Response provincial program, and cooperate with other government programs that help to eradicate or control invasive species in protected areas.

5.5.1. Invasive species will be managed or controlled as necessary to protect, without jeopardizing: human health, ecosystem health and biodiversity.

5.5.2. Invasive species control measures must be preceded by adequate analysis and planning (including a baseline inventory of species in the treatment area) and the establishment of a long-term effectiveness monitoring program.

5.5.3. Climate change will be considered when developing plans for invasive species management.

5.5.4. Invasive species control measures will consider the use of pesticides only if other options are unsuitable and there is a reasonable likelihood that the use of a pesticide will achieve management objectives.

5.5.5. The introduction or retention of non-native species to "enhance" biological diversity or for any other purpose will not be supported.

5.5.6. Terrestrial noxious weeds, as defined by the *Weed Control Act*, will be removed from protected areas in accordance with these conservation policies.

Invasive species that are not designated in Schedule A of the *Weed Control Act* may also be included in regional management strategies. See Habitat Manipulation policies.

5.6. Fire Management

BC Parks recognizes the important role of fire in maintaining the resilience of some forest, grassland and related ecosystems; in particular, maintaining ecosystems at various successional stages. After the protection of life and property, BC Parks' primary responsibility with respect to fire management is the maintenance of resilient natural ecosystems.

To ensure fire management strategies are sound, BC Parks will continue to encourage research relating to fire management such as the effect on vegetation diversity, soil processes and smoke impacts on humans.

5.6.1. Cooperative, interagency wildfire and prescribed fire planning and management, including the creation of inter-jurisdictional agreements, will be promoted.

BC Parks recognizes the long-standing expertise and traditional role of other agencies and their personnel in fire management planning and decision-making.

5.6.2. Wildfire Management Plans will be prepared for every protected area.

Wildfire plans reflect the primary importance of ecological processes and maintenance of ecological integrity. All actions taken with regard to wildfire will be directed by the protected area's Wildfire Management Plan.

5.6.3. As burned areas are vulnerable to invasive plant establishment, a risk assessment will be carried out (including plant inventories and control measures) after a wildfire has occurred, as well as preceding and following a prescribed fire.

Prescribed Fire

Prescribed fire is the knowledgeable and controlled application of fire to a specific land area to accomplish planned management objectives. These fires are managed in such a way as to minimize the emission of smoke and maximize the benefits to the environment. Fire is a natural process in many ecosystems. In some ecosystems fire is necessary to maintain healthy forests and grasslands for the diversity of plant and animal life.

5.6.4. Prescribed fire may be used as a tool to reintroduce fire where suppression has effectively removed it from the ecosystem; this includes for the purpose of reducing fuel accumulations that have created a fire hazard.

5.7. Insect and Disease Management

The primary responsibility of BC Parks with respect to insect and disease management is to restore or maintain natural ecosystem processes within protected areas. Insect and disease outbreaks will be assessed relative to their impact on the ecosystem within the boundaries of the protected area, and broader social, economic and ecosystem values.

Further guidance on insect and disease control can be found in the: Ecosystem Management Program.

5.7.1. Prior to any treatment of vegetation for insect or disease management, an assessment of potential impacts to the integrity of the ecosystem will be completed according to the BC Parks Impact Assessment Process.

5.7.2. BC Parks will consult with specialists and forest professionals to develop appropriate insect and disease control strategies and measures.

5.7.3. Insect and disease control actions that emulate natural processes will be used whenever possible.

Insect and disease control actions within protected areas include the following (listed in a descending order of preference):

1) Allow natural processes to prevail (i.e., monitor);
2) Set pheromone baits and traps;
3) Individual tree hand fall and burn on-site;
4) Large scale prescribed burn;
5) Large scale pile and burn on-site with low impact methods; and
6) Tree removal.

Options 5 and 6 should only be considered where treatments emulating natural processes are impractical or are more detrimental to the protected area, or where the forest health situation within a protected area presents a high risk to visitors, to the protected area or to adjacent values. No access roads will be constructed and remedial work will occur as necessary to restore the site. See Ecosystem-Based Planning Guide for further guidance.

5.7.4. Control actions inside protected areas will not include salvage logging or new road construction.

5.7.5. In collaboration with other agencies responsible for land and resource management, insect and disease control actions will be integrated and planned to complement control actions outside of the protected area.

5.7.6. Insect and disease control actions inside protected areas will be designed to minimize losses to protected area resources and values and to minimize cross boundary spread to adjacent Crown land.

Nuisance biting insects

5.7.7. Nuisance biting insects (e.g., mosquitoes and blackflies) in protected areas will not be subject to control measures unless it has been specifically determined they are a vector for human disease and pose a risk to public health and safety.

For direction on West Nile Virus response, see BC Parks West Nile Virus Management Guideline.

5.7.8. Nuisance biting insect control measures may be conducted within a provincial protected area by local government agencies to reduce mosquitoes in adjacent residential areas under specified circumstances.

These circumstances include:

- the control action is part of an integrated pest management plan;
- there is reasonable likelihood that control actions in the protected area will be effective in reducing mosquitoes in adjacent residential areas;
- the effectiveness of the control action is questionable without including the protected area in the treatment zone; and
- the control measures are consistent with conservation policies.

In most cases control measures will be part of an integrated pest management plan and a public health protection strategy or as part of a local government control program.

5.8. Windthrow Management

BC Parks recognizes that windthrow (blowdown) is a natural disturbance process that is important for ecological renewal. BC Parks' primary responsibility in windthrow management, after the protection of life and property, is to maintain natural ecosystems within protected areas.

5.8.1. Significant windthrow will be assessed and actions taken to address high risks to visitor safety, recreational, cultural and natural values and the risk of fire or insect infestation.

5.8.2. The potential of windthrow to lead to insect infestation will be assessed jointly with the provincial ministry responsible for forest management.

5.9. Habitat Manipulation

BC Parks will follow stringent environmental standards to protect and restore underlying ecosystem processes and minimize visual impacts in those situations where forest or habitat manipulation within parks, conservancies, recreation areas and protected areas is considered necessary to comply with the *Park Act*.

Habitat manipulation (including tree removal) may only occur:

- To prevent adverse impacts to natural, cultural or recreation features or to broader ecosystem values that are expected to result from inaction;
- To protect the health and safety of visitors, facilities and infrastructure;
- To undertake new facility and infrastructure development in pre-determined areas;
- To maintain recreational values in intensive use zones within protected areas;
- To manage a species or ecosystem of conservation concern that is experiencing

degradation due to natural processes or other pressure(s);

- To manage wildfire in accordance with conservation principles and policies;
- To support ecological restoration activities;
- To effectively treat insect or disease conditions when other forest health controls are ineffective;
- To accommodate approved mineral extraction within a recreation area;
- To accommodate pre-existing rights (within the terms of existing provincial standards); or
- To enable First Nations cultural use.

5.9.1. Habitat manipulation in protected areas will not be undertaken to encourage larger wildlife populations for consumptive purposes unless specifically stated in an approved management plan.

5.9.2. Management actions within cultural zones may include limiting successional advancement of vegetation or fire suppression to maintain historic vegetation cover or culturally modified vegetation.

Tree Removal

5.9.3. Tree removal is an acceptable management option in protected areas when required for human health and safety, to facilitate approved development, to protect infrastructure, or for ecological restoration or forest health management projects.

In all cases, tree removal will be undertaken using the most environmentally sensitive approach resulting in minimal environmental impacts. Retention of coarse woody debris in order to restore or maintain terrestrial and aquatic ecosystem structure and function is a priority outcome for tree removal projects.

The BC Parks guideline *Harvest of Trees in Protected Areas for Cultural Purposes* (2013) provides details on First Nations use of trees in protected areas.

Tree removal in protected areas must be undertaken in accordance with the BC Parks Tree Removal Policy, BC Parks Guideline, Harvest of Trees in Protected Areas for Cultural Purposes and the Wildlife/Dangerous Tree Assessment Process for Parks and Recreation Sites.

5.10. Ecological Restoration

Ecological restoration is a critical tool for conserving biodiversity, adapting to climate change, and improving human health and well-being.

In some cases, tree removal may be necessary to ensure public and worker safety or to ensure that environmental conditions are suitable for ecological restoration (e.g., to reduce fuel loading prior to reintroducing fire onto the landscape). Tree removal for

restoration purposes must be undertaken in accordance with the BC Parks Tree Removal Policy and Ecosystem Management Program.

5.10.1. Where compatible with protected area objectives, BC Parks will endeavour to restore natural ecosystem processes where a threat assessment has identified impaired ecological structure and/or function.

5.10.2. Native species, if extirpated from the protected area, may be reintroduced when scientific research indicates that the original extirpation was human caused, the prospect for natural re-establishment is minimal, and no significant negative ecological impacts in the protected area, or adjacent lands, are expected.

5.10.3. Ecological restoration programs will incorporate effectiveness monitoring.

Use of Native and Non-native Species

5.10.4. Ecosystem restoration, major vegetation re-establishment and landscaping projects will endeavour to use local native species, their seeds or vegetative parts where available and appropriate to the site and ecosystem.

Provided there is no adverse impact on the source, native plant material for propagation may be derived from the vicinity of the area being restored.

5.10.5. Under certain circumstances where site disturbance is severe, non-persistent, non-invasive non-native species may be used to stabilize the disturbed area as a first stage in a series designed to restore local native species or where later stages of succession are undesirable (e.g., road cuts and banks).

Non-native species may be used within intensive use zones where native species are unable to sustain high visitor impacts (e.g., playground).

No species may be used that has the potential to become established beyond the immediate area of use. Non-native species that may attract bears to the site should not be used.

5.11. Geologic and Hydrologic Features and Processes

Protected area management plans will guide which actions, if any, that are required to maintain representative geologic sites, hydrologic sites or critical soil features. Management actions may include: public education, access restrictions, not publicizing site locations or other special management prescriptions.

When required to achieve the strategic objectives of a protected area management plan, separate geologic, hydrologic or soil conservation plans may be prepared to guide actions to conserve significant geologic, hydrologic or soil features that are considered to be sensitive, unstable or subject to use.

5.11.1. Removal of geologic material from a Class A park or ecological reserve for any purpose relating to commerce or trade is not allowed. Where removal of geologic material for trade or consumption is consistent with other protected area designations, the management plan will specify and direct the activity.

5.11.2. Public use and protected area facilities associated with geologic, hydrologic or soil features will only be permitted where it is demonstrated that the activity will not adversely affect the feature or result in soil erosion and/or sedimentation in waterbodies.

5.11.3. Fragile or dynamic erosion features, such as hoodoos, sand dunes, and sensitive beach areas, will be protected from developments that may impair the feature's integrity or natural geological and hydrological process.

5.11.4. Protected area development plans account for and avoid natural rockfall areas, faults, landslide, debris torrent areas, and other types of dynamic sites. Protected areas will be managed to enable natural processes to continue while protecting visitors from harm.

5.11.5. Analysis of sea level rise and other hydrological processes associated with climate change will be a priority in order to design and implement adaptive management responses.

5.11.6. Recognizing that many species or ecosystems of conservation concern depend on specific soil conditions and soil building processes, soils identified as critical will receive high priority for conservation.

5.11.7. Where soil is exposed by facility construction or excessive use, erosion control measures will be taken to avoid off-site movement of soil or sediment.

Volcanic Features

5.11.8. Evidence of volcanics, particularly special features such as basalt columns, cinder cones, lava pillows, and other formations, will be protected to assure they remain unaltered by human activities.

Caves and Karst Management

5.11.9. Prior to opening a cave or karst system to the public, a management plan must be developed.

The management plan must adhere to recognized provincial standards and must outline:

a) how the cave system will be protected and perpetuated,
b) opportunities for scientific study and research,
c) cave features/systems, biota inventory needs,
d) future climate impacts to the cave features/karst systems,
e) opportunities for education and recreation,
f) visitor carrying capacity, and
g) access restrictions to protect caves or cave systems that are particularly fragile or provide key habitat for species of conservation concern, or to limit the spread of invasive species or disease (e.g., white nose syndrome in bats).

5.11.10. BC Parks will work with adjacent resource area managers to ensure that development projects outside of protected areas do not have a negative impact on cave and karst systems within a protected area.

5.12. Marine Systems

The policy statements in both the general and subject sections apply in managing the provincial marine protected areas. The following subject statements are relevant to management in the marine environment.

Marine ecosystem conservation and management is a shared responsibility in BC. Recognizing the important contribution of other organizations, BC Parks will maintain strong alliances with other provincial and federal agencies, user groups, universities, and conservation organizations. BC Parks also recognizes the importance of the marine environment to First Nations and the relationship of the Province and First Nations governments.

When required to achieve the objectives of a protected area management plan, marine plans may be prepared to guide actions and will reflect, above all else, the primary importance of ecological processes and the maintenance of ecological integrity.

5.12.1. Special features associated with marine species migration or unique behaviours will be assessed for their significance and will receive management emphasis.

Protected areas in the marine environment may be used by migratory species and may contain special features (e.g., mating, spawning or nursery locations) or support unique activities (e.g., rubbing beaches).

5.12.2. BC Parks will, in consultation with Fisheries and Oceans Canada, phase out commercial harvest of marine species that are attached to, and/or are otherwise part of the benthic ecosystem within the boundaries of Class A parks and ecological reserves.

5.12.3. Where commercial fishing of transient species (e.g., salmon, herring) is incompatible with protected area management objectives as stated in a management plan, BC Parks will work with fisheries management agencies to phase out or eliminate the conflict.

5.12.4. The harvest of all marine life will be coordinated with other managers of the multi-agency marine protected areas network.

Vessels

5.12.5. Vessel access within protected areas may be restricted in order to prevent pollution or to avoid disturbance of species of conservation concern.

Further guidance can be found at: Marine Conservation Guideline ; Water Code of Ethics; and Public Safety and Park Security Manual - Boating.

5.13. Cultural Heritage

BC Parks plays an important role in protecting and conserving cultural heritage in the province. Cultural heritage management is a shared responsibility in British Columbia, and BC Parks recognizes the importance of collaborating with First Nations, other government agencies and non-government organizations to ensure the effective stewardship of the province's cultural heritage.

5.13.1. Cultural heritage in British Columbia's protected areas system will be inventoried and assessed to define relative values and significance.

5.13.2. A protected area, or a specified Cultural Zone within a protected area, may be established and managed to protect a cultural heritage feature with historical or cultural significance.

5.14. Knowledge Acquisition – Research, Inventory and Monitoring

BC Parks will promote the collaborative acquisition and sharing of knowledge to facilitate effective conservation of natural and cultural values within both terrestrial and marine environments and to support management planning, impact assessment, ecosystem-based-management, and management of visitor impacts. BC Parks also recognizes that effective conservation relies on a well-informed and involved public.

Knowledge acquisition for conservation management consists of three main areas: research, inventory, and monitoring. The following activities are of priority:

a. increasing knowledge and awareness of natural and cultural features and processes in protected areas,
b. providing information that will assist in the formulation of management plans and management of human uses including understanding visitor impacts,
c. monitoring the status and use of natural and cultural features including species and ecosystems of special management significance, and
d. monitoring response to climate change to inform adaptive management.

All research, inventory and monitoring projects within protected areas conducted externally to BC Parks are subject to BC Parks Park Use Permit Policy.

5.14.1. BC Parks will assist academic, public, and private groups and individuals by providing existing data related to protected areas or by promoting inventories by qualified volunteers.

5.14.2. All conservation management research, inventory and monitoring proposals will follow Resource Information Standards Committee (RISC) standards whenever possible.

5.14.3. Education activities are a legitimate use of protected areas and will be encouraged where there is little or no impact on the natural and cultural values of the protected area.

Long-term Monitoring

Monitoring is an integral part of the management of natural and cultural systems, and is essential for enabling BC Parks to assess whether provincial, agency, and public conservation goals are being met. The range and distribution of protected areas in

British Columbia offers a unique opportunity to monitor and assess the environmental health of the province in general. Monitoring informs managers about what changes are occurring in key ecological elements and what studies may be needed to measure change in the ecosystem.

Protected areas will be promoted as sites for scientific research to contribute to the long-term understanding of landscapes, ecosystems and species and their associated processes, structures and functions.

5.14.4. BC Parks will maintain a long-term ecological monitoring program to detect change at regular intervals. Trend reports will be compiled at regular intervals.

The long-term ecological monitoring program will be reviewed periodically to ensure that a range of ecosystems, representing the diversity of protected areas, are included and that BC Parks' priorities (such as climate change adapation) are reflected in the program.

5.14.5. BC Parks will encourage the establishment of benchmark research and monitoring areas within the protected areas system.

Collaboration with Partners

Coordination with First Nations, other institutions (e.g., the Royal BC Museum) and agencies responsible for: fish and wildlife, priority species, the Conservation Data Centre, forest management, range management, species at risk, migratory birds, environmental protection, marine fisheries, and cultural heritage, will ensure efficiency and compatibility of research, inventory or monitoring efforts.

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

5.14.6. BC Parks will promote the involvement of interested institutions, organizations, stewardship groups, academia, and individuals in the collection of data on natural and cultural features for protected areas.

5.14.7. BC Parks will encourage and use citizen science to fulfil inventory and monitoring needs.

5.14.8. BC Parks will encourage and where, appropriate partner, with other government agencies (including First Nations agencies), academic institutions and stewardship groups to acquire natural and cultural knowledge.

Knowledge acquisition projects may be conducted internally (i.e., by BC Parks), or externally (i.e., by a third party) or collaboratively. Where needed,

BC Parks will undertake research, inventory and monitoring in support of provincial, interprovincial, and international initiatives.

5.14.9. BC Parks will work in collaboration with First Nations to collect knowledge related to current and historical use of natural and cultural features by First Nations.

Academic Research

5.14.10. Academic research in protected areas is encouraged providing it is compatible with protected area values.

Further guidance related to research activities in protected areas can be found at:

- Resource Inventory Standards Committee;
- Research Permit Policy;
- Research Guidelines;
- Research Brochure and;
- BC Parks Impact Assessment Process.

Scientific Collection and Removal of Material

5.14.11. Scientific collection and removal of biotic or abiotic material will be allowed only when shown to be necessary for research, baseline inventory, monitoring or impact analysis.

Examples of biotic material include (but are not limited to) botanicals, fish and wildlife species. Examples of abiotic material include (but are not limited to) soils, geologic specimens, paleontological specimens or cultural features.

Collecting for the purpose of building up private collections of specimens will not be permitted.

Unless its existence is threatened by natural forces such as erosion, climate change-related processes, or public extraction, removal of any paleontological feature from protected areas will not be permitted.

5.14.12. Any voucher collections or specimens that are collected for scientific research will remain the property of the Province of British Columbia, regardless of where they are stored.

The final repository for voucher specimens necessary for identification and documentation of occurrences will normally be as directed in provincial standards (Resource Inventory Standards Committee).

All specimens will be inventoried and BC Parks will be supplied with copies of the findings.

5.14.13. Permits to collect species of conservation concern or locally rare species will not normally be given in protected areas. Permits to collect species of conservation concern will only be issued where other means of identification and documentation are not possible.

6. Definitions

Artificial enhancement is any management action that serves to increase fish and wildlife populations beyond natural variability. Examples include: increasing fish spawning rearing or feeding habitat, fish stocking, and grassland burning to suspend succession and increase grazing potential.

Adverse Impact is a condition determined through the BC Parks Impact Assessment process where human activity impacts ecosystem function (representation, connectivity, climate change resistance/resilience, etc.), special, unique, rare or endangered natural values resulting in compromised integrity of the natural environment.

Baseline Inventory Data is a set of data that provides the basic level of knowledge required for further analysis.

Benthic refers to the bottom of a waterbody or to the organisms that live there.

Biological Control or biocontrol, is the use of an invasive plant's natural enemies, known as agents (chiefly insects, parasites and pathogens) to reduce the plants population below a desired level. Classical biocontrol agents may kill the invasive plant species directly or indirectly by decreasing reproductive and competitive abilities or plant vigor, which in turn encourages the re-establishment of native vegetation. It is a long-term self-sustaining treatment method for managing invasive plant species.

Biological Diversity or biodiversity is the variety of species and ecosystems on earth and the ecological processes of which they are a part, including ecosystem, species and genetic diversity components.

Citizen science is the systematic collection and analysis of ecological or environmental data involving both professional science workers and volunteers.

Coarse Woody Debris (CWD) is dead woody material, in various stages of decomposition, located above the soil, larger than 7.5 cm in diameter (or equivalent cross-section) at the crossing point, which is not self-supporting. Trees and stumps (intact in ground) are considered self-supporting.

Collection includes any activity that involves the capture, picking and/or removal of biotic or abiotic material, prehistoric or historic specimens.

Commercial Logging is the removal of trees from an area (including salvage logging) for economic return.

Conservation Framework is the approved provincial procedure for assessing species and ecological communities for conservation action.

Conservation Risk Assessment is the standard BC Parks procedure for assessing natural and cultural values and threats in protected areas. The procedure includes an inventory

of those values and an assessment of the landscape parameters of rarity, representation and viability.

Critical Habitat, under the *Species At Risk Act* (Canada) legally defined as the habitat that is necessary for the survival or recovery of a listed wildlife species and that is identified as the species' critical habitat in the recovery strategy or in an action plan for the species.

Dangerous Tree (hazard tree) is a tree that poses a hazard to people or facilities because of its location or lean, physical damage, overhead hazards, deterioration of limbs, stem or root system, or any combination of the above.

Ecological Community is a recurring plant community with a characteristic range in species composition, specific diagnostic species, and a defined range in habitat conditions and physiognomy or structure.

Ecological Restoration is defined by the Society for Ecological Restoration as "the process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed by human activity". The aim of ecological restoration is to re-establish ecosystem structural characteristics, species composition and ecological processes. Often the motivation for ecological restoration is the recovery or conservation of a species of conservation concern.

Ecosystem is a dynamic complex of plant, animal and microorganism communities and their abiotic environment, all interacting as a functional unit.

Ecosystem processes are grouped into 4 basic processes common to all ecosystems:

- Water cycle
- Mineral cycle
- Energy flow
- Community dynamics (also called succession).

These processes are sometimes called the four ecosystem foundation blocks because they are so fundamental to ecosystem function.

Ecosystem-Based-Management recognizes interactions between ecosystem components and human values and gives direction for the maintenance or restoration of natural processes.

Fish and Wildlife includes all terrestrial, aquatic, and marine vertebrates (mammals, birds, reptiles, amphibians, fishes) and invertebrates. For the purposes of this policy wildlife can include all non-cellular life (viruses) and cellular life, except fungi and plants.

Forest Health Management includes actions undertaken to minimize the impact of forest insects and diseases on identified forests within and outside of protected areas.

Future Ecosystems describes accelerated ecosystem evolution driven by climate change. The term is intended to encapsulate climate change forecasts that the current descriptions of stable climax ecosystems are inadequate to describe; the abiotic and

biotic community ecosystem associations that may will develop as a result of climate change; the patterns of biotical biological response to climate change and the continuous transitions that will be the norm in the next few centuries.

Geologic Features are products of processes or forces acting on the earth, such as mountains, dunes, volcanoes, minerals, rock formations and soils.

Highest protection level can be achieved in parks management through zoning as:

- wilderness conservation or
- special natural feature.

Hydrologic Features are the products of processes related to water and the water cycle. Most often thought of features are rivers, lakes and oceans and related features like waterfalls or shorelines. There are also caves, karst and marl features that are the result of chemical processes.

Indicator Species is a species whose population size and trend reflect the population size and trend of other species of the same system (Dunster 1996).

Invasive Species are any invasive non-native species that has the potential to pose undesirable or detrimental impacts on humans, animals or ecosystems. Invasive species have the capacity to establish quickly and easily on both disturbed and un-disturbed sites, and can cause widespread negative economic, social and/or environmental impacts. The term invasive species is synonymous with alien species, weeds, exotic species and non-native species.

Inventory is 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.

Karst refers to landforms resulting from erosion by water in areas dominated by soluble rock, such as limestone.

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

Key Habitat is habitat necessary for the maintenance of a species population. Where the subject species is managed under *Species at Risk Act* (Canada) key habitat includes critical habitat.

Knowledge includes scientific, indigenous and traditional ecological knowledge.

Land means land, whether or not it is covered by water, or an interest in land, vested in the government

Landscape refers to a management area that is at a scale large enough to encompass a heterogeneous set of interacting ecosystems and a variety of geomorphic features such as mountains, plains, rivers, lakes, ponds and ocean. It is often multi-jurisdictional, multi-purpose and multi-stakeholder. Effective management at the large landscape scale can provide benefits to all parts of the whole including increased resilience.

Log Salvage is the activity of searching for and taking possession without the owners' consent of timber, logs or trees that are abandoned, adrift, cast ashore or lying on or embedded in the bed or bottom or on the bank or beach of a river, stream, lake or ocean. This form of log salvage is often referred to as beachcombing.

Manipulation of Vegetation includes the cutting down, burning, trimming, pruning or rooting of vegetation. Can also include planting of vegetation (forbes, grasses, shrubs, trees, etc.).

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

Non-native Species are those species, or subspecies introduced through human activities into an ecosystem where it did not formerly occur.

Noxious Weed is any weed (including seeds) designated by regulation to be noxious under the BC *Weed Control Act* (*WCA*) and regulations.

Old-Growth is a forest condition that contains live and dead trees of various sizes, species and age classes that are part of a slowly changing but dynamic ecosystem. The age at which old growth develops the specific structural attributes that characterize old growth will vary widely according to forest type, climate, site characteristics and disturbance regime. Old growth is typically distinguished from younger stands by several of the following attributes: large trees for species and site; wide variation in tree sizes and spacing; accumulations of large diameter and height dead standing and fallen trees; multiple canopy layers; canopy gaps and understory patchiness; decadence in the form of broken or deformed tops or boles and root decay.

Palaeontological Features are fossil and non-fossilized features of all groups of organisms (e.g., vertebrates, invertebrates, plants, pollen, and spores) except human remains or artefacts.

Prescribed Burning is the knowledgeable application of fire to a specific land area to accomplish predetermined ecosystem management objectives.

Priority Species and Ecosystems includes species and ecosystems that have been ranked priority 1 or 2 within the Conservation Framework.

Protected Area(s) includes all those lands and lands covered by water managed under the *Park Act, Protected Areas of British Columbia Act, Ecological Reserve Act*, and *Environment and Land Use Act* unless otherwise stated.

Protected Areas System includes Parks, Conservancies, Recreation Areas, Ecological Reserves and Protected Areas unless otherwise stated.

Provincial Marine Protected Area is any of the provincial protected areas that include some portion of the intertidal or subtidal marine realm. The definition in the *National Framework for Canada's Network of Marine Protected Areas* is "A clearly defined geographical space recognized, dedicated, and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values, that is situated partly or wholly in Canada's marine environment" (based on the definition provided by the World Conservation Union's World Commission on Protected Areas (IUCN/WCPA) in 2008).

Research Study is 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.

Resilience is the capacity of an ecosystem to respond to a perturbation or disturbance by resisting damage and recovering quickly.

Soils are earth materials that have been so worked upon by physical chemical and biological processes that they will support rooted plants or communities of soil dwelling organisms.

Special Features can be either biotic abiotic or anthropic. Biotic special features are elements of biodiversity that have significance either because they are important habitat for seasonal concentrations of species or because they are uncommon or even unique at a given scale owing to their unusual ecological characteristics. Abiotic special features are physical phenomena or attributes such as minerals, terrain formations, aquatic features. Anthropic features are the result of human activity, especially those features that relate people to a place or landscape. Refer to the Conservation Risk Assessment for details.

Special or Unique Fish and Wildlife are fish or wildlife that may not be endangered, threatened, or vulnerable but has significant value at a regional or local level.

Species and Ecosystem of Conservation Concern includes:

- priority species and ecosystems in the Conservation Framework,
- species assessed by COSEWIC as endangered, threatened or special concern,
- species listed under the federal *Species at Risk Act* (Canada), or
- any species or ecological community that is considered regionally significant.

Succession is the change in ecosystems, their structure, function, and species composition over time from a pioneer to a climax stage.

Salvage logging is commercial logging of dead or dying trees either standing or down.

Tree Disposal is the process of selling trees to third party interests.

Tree Removal is the activity of cutting and removing trees from a protected area to achieve human health and safety, ecological restoration, forest health management, wild fire control action, facility or infrastructure development objectives.

Use refers to activities that make direct use of a species, geologic or hydrologic feature including harvest, collection or pursuit of animals for viewing. Where consistent with the conservation and recreation objectives contained in management plans for individual protected areas consumptive uses of fish and wildlife in protected areas may include:

- recreational hunting (includes guided hunting),
- recreational fishing (includes guided fishing),
- trapping[2], and/or
- shellfish harvesting.

Vegetation includes aquatic and terrestrial vascular and non-vascular plants, and for the purpose of this policy includes lichens and fungi.

Vegetation Plan is any operational level plan that specifies actions needed to restore, maintain or otherwise manipulate vegetation including dangerous or hazard tree management plans.

Wildfire Management Plan describes any combination of the various types and levels of documents that plan for wildfire management, response, and recovery. Three types are used in BC Parks:

Wildfire Response Plan is a quick reference summary of the protected areas system that has contact details for BC Park staff responsible for wildfire response, a map of each protected area and a description of special considerations for fire suppression activities. Special considerations include, but are not limited to, species and ecosystems of conservation concern, sensitive ecosystems, important wildlife habitat or other ecological considerations, important facilities, evacuation information and safety hazards.

Detailed Fire Management Plan details predetermined fire suppression strategy and tactics to be deployed following fire occurrence in a given land management unit.

Pre-attack Plan contains data on fuel types and topographic conditions including fuel breaks, access routes and travel times, water supply sources, lakes suitable for skimmer aircraft, and existing heliports. It also includes information on existing and/or proposed locations for control lines (including the types and number of fire suppression resources that may be required and probable rates of fireguard construction, and possible constraints), base and line camps, helispots, and the priorities for construction and/or improvement of pre-suppression facilities.

[2] Existing trapping tenures will be continued. Trapping tenures are normally renewable and transferable.

Wildlife Tree is any standing tree dead or alive with special characteristics that provide valuable habitat for the conservation or enhancement of wildlife.

Windthrow also known as blowdown is a natural phenomenon where a wind event causes tree failure, either breakage or uprooting.