

WILDLIFE HARVEST STRATEGY

IMPROVING BRITISH COLUMBIA'S WILDLIFE HARVEST REGULATIONS



Province of British Columbia
Ministry of Environment, Lands and Parks
WILDLIFE PROGRAM
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PREFACE

This document is the finalized framework for managing game species in British Columbia from 1996 to 2000. An important emphasis reflected in the strategy is the recognized need to harmonize and simplify hunting regulations, while providing improved recreational opportunities, consistent with the goals of the Wildlife Program.

In April 1994, the Wildlife Program of the Ministry of Environment, Lands and Parks set out a strategy to manage wildlife on behalf of the people of British Columbia. Titled *Maintaining British Columbia's Wildlife Heritage - Provincial Wildlife Strategy to 2001*, the strategy describes the vision, goals, and strategic objectives of the Wildlife Program.

In partnership with the people of the province, the vision of the Wildlife Program is: "Maintaining British Columbia's Wildlife Heritage." This vision describes the future the British Columbia Wildlife Program is striving to achieve. Our purpose is to encourage appreciation of the diverse values of wildlife while ensuring the province's wildlife heritage is passed on undiminished to future generations. Reflecting public wishes, three goals further define the vision:

Goal One: Maintain the diversity and abundance of native species and their habitats throughout British Columbia.

Goal Two: Provide a variety of opportunities for the use and enjoyment of wildlife.

Goal Three: People and wildlife living in harmony.

Goal One is the highest priority of the Wildlife Program. It is a commitment to maintain and, where appropriate, restore B.C.'s native wildlife species and their habitats throughout the province¹. The introduction into the wild of non-native species that could directly harm native wildlife species or jeopardize native ecosystems will be prohibited.

Goal Two focuses on sustainable use and enjoyment of wildlife species and their habitats. This includes management of wildlife to provide opportunities for a range of activities, including education (research, nature study), viewing, hunting, and trapping.

¹ More than 600 species comprise the wildlife heritage of British Columbia.

Goal Three focuses on reaching a balance between meeting the needs of wildlife and the needs of people. Impacts of human activities on wildlife can severely affect wildlife species abundance, distribution, and diversity. Impacts of wildlife on people are less widespread and are mostly economic (crop, landscape, or structural damage), safety, or health related.

In working to achieve the three goals of the Wildlife Program, it is recognized that wildlife management occurs within the context of a broader provincial land-use strategy. Thus, wildlife management must work within the provincial land-use planning framework if it is to represent the needs of wildlife, identify implications of land-use plans, and develop balanced management options and recommendations for sustaining the province's wildlife heritage.

This document, the British Columbia "Wildlife Harvest Strategy," is a result of two years of development by Victoria Wildlife Branch staff working in consultation with regional Wildlife Program staff, and with input from interested members of the public. The Wildlife Harvest Strategy flows from the Provincial Wildlife Strategy and complements its various components. It should be noted, however, that this document covers only wildlife harvest strategy and is not intended to address other issues of equal or greater importance, such as the conservation of threatened and endangered species, wildlife habitat protection, or other nonconsumptive uses of wildlife. It responds primarily to Goal Two of the Provincial Wildlife Strategy: "Provide a variety of opportunities for the use and enjoyment of wildlife." Secondly, in special cases, harvest prescriptions contribute to reducing conflicts between people and wildlife. Thus, this strategy also contributes to Goal Three: "People and wildlife living in harmony."

Development of the Wildlife Harvest Strategy is consistent with provisions of the B.C. *Wildlife Act* and, in October 1994, received the support of the Minister of Environment, Lands and Parks when he announced its preparation. In April 1995, a draft discussion paper was prepared and distributed for public review and comment. This document is the product of extensive revisions to the discussion paper, based upon comments received, plus additional input from Wildlife Program staff.

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INTRODUCTION

Wildlife is an important natural resource in British Columbia. Indeed, British Columbia has the greatest diversity of wildlife species in Canada. The B.C. Environment, Wildlife Program is the principal government agency responsible for protecting, enhancing, and sustaining this resource. Hunting, trapping, and falconry have long been recognized as legitimate, sustainable uses of the resource. Notwithstanding, the Wildlife Program recognizes that the direction and scope of our harvest management activities require periodic review and modification as society's values and expectations change. This document is one step towards that end.

There are three principal components of regulated allowable harvest of wildlife:

◆ **Hunting**

Hunting has a long history in British Columbia. It is important both from a traditional perspective and as recreational activity. It provides food for many people and adds significantly to the provincial economy, especially in smaller communities and rural areas of the province. Hunters, through financial support and volunteer labor, make a significant contribution to wildlife conservation, and are an important factor in the regulation of managed populations. Hunting also plays a role in public safety (such as in managing bears or cougars in urban and suburban areas), and the protection of private property (such as for agricultural crop protection). Where consistent with the conservation of the resource, the Wildlife Program will continue to manage game species to provide a variety of hunting opportunities for the people of British Columbia.

◆ **Trapping**

The fur trade also has a long history in British Columbia. Trapping is a source of income and way of life for some provincial residents, and contributes to the province's economy. The Wildlife Program will continue to work with licensed and aboriginal trappers to ensure the conservation of furbearers and to develop and implement humane trapping methods.

◆ **Live Capture**

The Wildlife Program issues permits to live-capture and hold captive wildlife for facilities such as zoos providing public education, scientific institutions, and restricted traditional private uses, such as falconry. These permits contain conditions to ensure public safety and humane husbandry, and to prevent escapes.

PURPOSE OF THIS STRATEGY

Given the recent declines in hunter numbers (Appendix A), increasingly complex and restrictive hunting seasons and regulations, and increased demands on staff time and budgets for administering, monitoring, and enforcing regulations, the Wildlife Program has undertaken a review of its current harvest management practices. This document, the *Wildlife Harvest Strategy* (WHS), summarizes the results of this review and sets out a new management approach that will enable British Columbians to participate in setting directions for the continued use of wildlife for hunting, trapping, and live capture.

Within the context of the province's wildlife strategy, *Maintaining British Columbia's Wildlife Heritage - Provincial Wildlife Strategy to 2001*, a primary purpose of the WHS is to identify key issues and strategic objectives for managing harvests so that the welfare of hunted wildlife populations is assured. An additional purpose of the WHS is to establish a consensus from the public and from wildlife managers regarding harvest management principles, species management standards, harvest management tools, and guidelines for prescribing hunting seasons.

This WHS reflects the goals of the Wildlife Program and recognizes that Goal 1, "Maintain the diversity and abundance of native species and their habitats throughout British Columbia," is our highest priority goal. The WHS establishes:

- the framework for harmonizing and simplifying hunting regulations while providing improved recreational hunting opportunities;
- direction to Wildlife Program staff in developing species harvest prescriptions and applying the hunting regulations;
- the basis for providing a clear, understandable, and practical regulations synopsis;
- the guidelines for establishing the hunting regulations setting process;
- the basis for continuing communication and discussion with the public, including aboriginal people.

HARVEST MANAGEMENT PRINCIPLES

The Wildlife Program recognizes that:

1. hunting, trapping, and falconry are legitimate uses of the wildlife resource in British Columbia providing they do not jeopardize the sustainability of individual wildlife populations;
2. hunting and trapping are important factors in regulating managed wildlife populations;
3. recreational, cultural, and commercial values of the wildlife resource must be integrated with other social, economic, and biological values;
4. aboriginal peoples in British Columbia have a priority to harvest wildlife for sustenance purposes where such use is determined to be an aboriginal right;
5. the federal government has the legal responsibility with respect to the management of birds as listed in the *Migratory Birds Convention Act* of 1994, and marine mammals as listed in the *Fisheries Act* of 1867; and
6. the British Columbia *Wildlife Act* and regulations define the species of wildlife that may be harvested.

The opportunity to harvest wildlife carries with it the obligation to adhere to the following five general harvest management principles:

1. Conservation

- ◆ ***Conservation of natural diversity, distribution, and viability of indigenous wildlife populations are the highest management priorities.***
 - The harvest of wildlife must not impair the sustainability of any hunted wildlife species.
 - Harvest options, strategies, and prescriptions must be based upon scientific principles (see Appendix D).
 - Harvest prescriptions must be sufficiently conservative to allow for uncertainty in determinations of population status.
 - Red-listed species and subspecies (considered for endangered or threatened designation) will be managed for recovery and will not normally be harvested.
 - Prescribed harvests of blue-listed species and subspecies (considered to be sensitive or vulnerable) will be particularly cautious to ensure species conservation.

- Selected yellow-listed species and subspecies (species not at risk) that are legally designated as game species under the *Wildlife Act* will normally be available for harvest where there is public demand, and where the harvest is deemed sustainable.
- For populations that are hunted, harvest prescriptions will ensure that selective harvesting by specified gender or horn curl/antler regulations does not alter sex or age class ratios in such a manner that the population sustainability is impaired, or that genetic variability is reduced.

2. Ecological Constraints

◆ ***Harvest strategies must reflect the ecological constraints that affect wildlife populations and their habitats.***

- Normally, harvest options and prescriptions will be based upon the productivity of wildlife populations as affected by natural processes, or their artificial equivalents (e.g., logging, prescribed burning), operating within provincial ecosystems.
- Within provincial ecosystems, harvest options will be adjusted to reflect patterns of land-use and access.
- Wildlife species will not be translocated within the province for the purpose of providing hunting opportunity, or for any other purpose, where such an introduction could jeopardize ecosystems upon which indigenous wildlife depend.

3. Harvest Opportunity

◆ ***Opportunities for hunter harvest of a wildlife population must be identified in the context of other uses of wildlife.***

- Normally, harvest opportunities will be commensurate with estimates of the annual allowable harvest (AAH), which may range from near zero harvest to the maximum allowable harvest for each wildlife population².
- Harvest opportunities may be more liberal in agricultural areas and in areas that experience animal damage (“animal damage control areas”)³.

² The basis of this principle is that population objectives, inventory or monitoring, analysis and assessment should accompany actual use of the wildlife resource and should dictate the amount of harvest opportunity available.

³ In some circumstances, such as management of conflicts between wildlife and agriculture, a harvest exceeding a sustainable harvest level could be prescribed to reduce numbers to the desired population level.

- Harvest opportunities for non-game species may be allowed for cultural and societal use by aboriginal people where specified and set out in law and government policy, or for protection of private property.
- The priorities for allocation of the annual allowable harvest will normally be: first priority - aboriginal use as prescribed in law; second priority - British Columbia resident use; third priority - non-resident use⁴.
- The non-aboriginal share of the harvest will be allocated on the basis of equality, regardless of the place of residence within the province.
- Special weapons policy will encourage the season-long use of qualifying special weapons (archery equipment, muzzle-loading firearms) in hunting and will specify the conditions under which exclusive archery-only seasons can be prescribed.

4. Hunting Practices and Ethics

- ◆ ***Hunting provides for a diversity of human needs, from natural satisfaction of acquiring food to feed one's self and family to highly personal spiritual experiences. These needs are recognized as legitimate provided they are achieved within specified standards.***
 - As much as possible, options for hunter harvest of a wildlife population will be safe for hunters and humane for wildlife.
 - the concept of "fair chase" will continue to be fostered and the law changed as necessary to ensure that certain methods of hunting and the use of certain kinds of equipment are regulated.
 - For harvested wildlife, maximum personal utilization by hunters will be encouraged and, where appropriate, enacted in law.
 - Some commercial uses, such as selling meat and certain body parts of harvested wildlife, will remain illegal.
 - Hunter education (e.g., CORE) will be compulsory for first-time resident hunters, and encouraged for all hunters.

5. Consultation

- ◆ ***The general public, including aboriginal people, hunters, wildlife interest groups, trappers, and the guide-outfitting industry will continue to be consulted in the management of the wildlife resource.***

⁴ The basis for allocating harvests between aboriginal people and British Columbia residents is still under discussion and negotiation. The resident/non-resident share will be allocated according to the Provincial Allocation policy.

- Wherever possible, wildlife management objectives and harvest regulations will be established after consultation with aboriginal people and public interest groups.
- Wherever feasible, aboriginal people, hunters, trappers, falconers, guide outfitters and the general public will be asked to assist in the collection of information required for harvest management.
- Co-management agreements with aboriginal peoples will be developed in special situations.

KEY ISSUES AND STRATEGIC OBJECTIVES

Five key issues were identified in the Wildlife Program Strategy:

- Insufficient information
- Adverse impacts on species and habitats
- Increased responsibilities and changing expectations
- Communicating with the public
- Competition for human use of wildlife

The "Strategic Objectives" listed under each issue are considered to be the desired measurable outputs required for managing harvested wildlife species so their population sustainability is assured prior to allowing for public use.

Key Issue: Insufficient Information

Additional knowledge is required about many species of wildlife. Increased inventories on the abundance, composition, distribution, and trends of wildlife populations are needed. Wildlife population responses to various harvest strategies requires more investigation. Timely retrieval of harvest information on game species is required for setting hunting regulations. More information regarding public desires for the use of wildlife is also required for implementing long-term harvest management plans.

Strategic Objectives: By the year 2001, the Wildlife Program will strive to have —

- population inventory standards and protocols in place for all wildlife species;
- an "active adaptive management" strategy in place to deal with uncertainty in harvest decisions;
- population monitoring programs for all game species (see species management standards);
- a wildlife inventory system that supports the collection of data and a Corporate Animal Inventory Database for the storage and retrieval of this data;
- an improved harvest information system that documents harvest levels by aboriginal people and provides direct, timely access to harvest statistics for setting hunting regulations;
- a wildlife modeling analysis system that consists of a number of accepted standard manual procedures, including automated population dynamics models that incorporate uncertainty into population assessments, and assess risk when calculating annual allowable harvests;
- a public survey management system that will enhance our knowledge about levels, trends, and projections of various wildlife values and uses by the public;

- an adequately funded and staffed wildlife management program, including a research program, that provides the results needed to manage wildlife and their habitats.

Key Issue: Adverse Impacts on Species and Habitats

The major threat to wildlife is the permanent loss or degradation of habitat. The Wildlife Program has limited authority to manage and protect wildlife habitat. The Program will continue to perform this function primarily by identifying the habitat needs of wildlife and then conveying this information to agencies that have control over habitat. One exception is the role of fire. The Wildlife Program will continue to implement prescribed burning as a method of counteracting the loss of biodiversity resulting from natural fire suppression.

Wildlife is directly affected by human activities, including poaching, harassment, road and rail kills, and the trade in animal parts. These impacts increase as access to wildlife and their habitats increases (e.g., new roads, all-terrain-vehicles). Weather during the hunting season may also alter the vulnerability of specific wildlife populations. All of these impacts can adversely affect wildlife populations, and may require intensive, on-site management prescriptions to address specific concerns.

Strategic Objectives: By the year 2001, the Wildlife Program will strive to have —

- public demand for the use of wildlife and wildlife needs integrated into government land-use plans and practices;
- habitat and population management strategies that maintain or increase the distribution and abundance of species where public demand exceeds the existing allowable harvest;
- improved enforcement capability from the Conservation Officer Service to address poaching concerns;
- habitat and population management strategies that are compatible with natural ecosystems;
- a more efficient process for closing hunting seasons on an emergency basis.

Key Issue: Increased Responsibilities and Changing Expectations

Public awareness of the need for responsible stewardship of living resources and the maintenance of the quality of the province's environment is increasing. This public sentiment includes broadened concerns for the sustainability of game species, as well as for endangered and non-harvested species.

The needs of aboriginal people, new environmental legislation (e.g., Forest Practices Code), land-use planning initiatives (e.g., CORE, LRMPs) and the Protected Areas Strategy (PAS) must now be considered when developing harvest management prescriptions and options. These new initiatives have greatly increased demands on staff time.

Strategic Objectives: By the year 2001, the Wildlife Program will strive to have —

- increased support and participation of private and public groups in wildlife conservation programs and projects;
- increased involvement with aboriginal people in the stewardship of wildlife;
- increased public participation and support for wildlife conservation and management programs, including inventory;
- a more efficient and effective means of establishing annual harvests to allow biologists to focus conservation efforts on a wider range of species.

Key Issue: Communicating with the Public

Public communication is an integral component of a successful wildlife management program. Many British Columbians are unfamiliar with the province's wildlife heritage, and the uses and benefits of wildlife to the environment and the economy. Some hunters question the need to harvest antlerless animals, and demand liberal opportunities to hunt male animals. Improved communication is crucial for building public understanding and support for our management activities, including hunting and trapping of wildlife.

Many hunters are frustrated by the complexity of the hunting regulations and would like to see them simplified (see Appendix A). The current Hunting Regulations Synopsis is difficult to understand, and the high number of special area regulations and maps only adds to the problem. Bringing about a significant improvement in the synopsis is a priority of the WHS. Revisions will help to offset much unnecessary confusion by:

- increasing the enforceability of wildlife harvest regulations;
- increasing voluntary client compliance;
- enhancing recreational opportunities;
- reducing administrative and enforcement costs;
- communicating our wildlife harvest mandate and objectives;
- and by enhancing the public image of the Wildlife Program.

Strategic Objectives: By the year 2001, the Wildlife Program will strive to have —

- a hunting/trapping regulations maintenance system to improve availability, accessibility, use, and integration of data regarding harvested wildlife for managers and land-use decision-makers in municipal, regional, provincial and federal governments, and for aboriginal people;
- a comprehensible synopsis of the hunting/trapping regulations, including better layout, more uniformity in seasons, and improved special area maps and restrictions;
- hunting regulations that are coordinated between administrative regions, and that are established well in advance of the hunting season;
- mandatory education programs for selected wildlife uses including hunting, trapping, and live-capture;
- a process to monitor public opinion and perceptions regarding the use of wildlife for hunting, trapping, and live-capture;
- an expanded range of information on the ecology, management, economic value and benefits of wildlife for the public; including recreational, sustenance, cultural, and commercial values and benefits.

Key Issue: Competition for Human Use of Wildlife

Activities such as wildlife viewing, photography, and nature study are sometimes incompatible with uses such as hunting and trapping. There may also be conflicts within the same type of use, such as resident versus non-resident hunting. As the human population of British Columbia increases, the demand for wildlife-related activities increases; and so does the potential for conflict. We must address this by regulating the allowable uses of wildlife, such as hunting and trapping.

Wildlife has always been important to the survival and culture of aboriginal people. Recently, courts, treaty negotiations processes, and other initiatives have recognized the right of aboriginal people for access to and use of wildlife. Aboriginal people will play a larger role in wildlife management activities as this right becomes more clearly defined.

Strategic Objectives: By the year 2001, the Wildlife Program will strive to have —

- a process for consensus decision making concerning allocation of allowable harvest between various uses including: conservation; viewing; harvest by aboriginal people, residents, and non-residents; and protection of public safety;

- provincial policy, integrated plans, and regulations to reduce conflicts among different users of wildlife;
- a variety of recreational opportunities for different user groups, by season and location, including maintaining opportunities for roadless, wilderness and backcountry hunting experiences.

SPECIES MANAGEMENT STANDARDS

This section deals with the management standards for game species harvested in British Columbia including two caribou ecotypes, coast black-tailed deer, interior mule deer, white-tailed deer, two subspecies of elk, moose, mountain goat, two subspecies of bighorn sheep, and two subspecies of thinhorn sheep; plus black bear, grizzly bear, cougar, wolf, migratory gamebirds, upland game birds, furbearers and falconry.

The discussion of each species includes the following:

- management constraints and opportunities
- provincial harvest management goals
- hunting policy statement
- regulating harvest
- harvest monitoring
- population monitoring

Recommended opening and latest closing season dates, antler and horn curl definitions, and some specific regulations are identified. These components of the hunting regulations are designed to ensure that species management standards conform to the harvest management principles. However, some deviation from the recommended standards may be allowed for special circumstances.

CARIBOU HARVEST MANAGEMENT STANDARDS

◆ Management Constraints and Opportunities

All caribou in British Columbia belong to the woodland subspecies (*Rangifer tarandus caribou*), but they can be considered as two different ecotypes: the “mountain” ecotype and the “northern” ecotype (sometimes called Osborn caribou). The mountain ecotype occurs within suitable montane ecosystems of the east-central and southeastern portions of the province. Caribou in these ecosystems are primarily limited by the availability of arboreal lichens in winter. Long-term habitat losses have been sustained through logging, fire, creation of water reservoirs, agriculture, and railroad and highway construction. Within northern ecosystems, the primary factor currently limiting caribou populations appears to be predation. Although less affected by large-scale habitat loss, increasing resource extraction activities and associated new access are also concerns in the management of northern caribou and their habitats.

Caribou have less capability for sustaining high harvest levels than other cervid species. Low calf recruitment, migratory habits, dependence on critical seasonal habitats, and vulnerability of mature

bulls to hunting during the rut necessitates greater restriction of harvest opportunities than for deer, elk, and moose.

◆ **Provincial Harvest Management Goals**

In general, caribou will be managed to optimize population sustainability within ecosystems while allowing for options and opportunities associated with viewing and hunting. Hunting regulations which have allowed the heavy harvest of bulls have skewed bull age structures and adult sex ratios. One management goal, therefore, will be to maintain or (where necessary) restore appropriate sex and age ratios. Because the mountain ecotype is blue-listed (either or both species/habitat considered vulnerable), it will be managed more conservatively than the northern ecotype.

◆ **Hunting Policy Statement**

Where caribou hunting seasons are prescribed, the level of harvest will be adjusted to meet hunter demand within the constraints of conservation and allowance for non-hunting uses (e.g., nature study, wildlife viewing). Wherever possible, caribou hunting regulations will be kept simple, uniform within ecosystem units, and consistent over time. Regulations to increase resident hunter harvest opportunities, including the harvest of “any bull,” cows, and calves, may be considered for the northern ecotype providing population surveys indicate increased harvests are sustainable. Regulations will require that hunters remove the edible portions of the carcass to a place of consumption.

◆ **Regulating Harvest**

In lightly hunted populations, bull caribou will normally be harvested through a general open season (GOS) “any-bull” regulation. For moderately hunted populations antler regulations such as the “5-point bull regulation” may be applied. Heavily hunted populations may require a combination of regulations, including limited entry hunting (LEH), in order to achieve population objectives. Caribou may also be managed under LEH “any bull” or “any caribou” regulations in provincial parks and selected highly accessible areas. Harvest levels will be regulated to ensure that adult sex ratios are maintained above 35 bulls/100 cows post-season. Archery only seasons, where in effect, will usually occur prior to the bull GOS.

<i>Opening Dates:</i>	<i>General Open Seasons</i>	<i>Limited Entry Hunting</i>
Any bull	Aug. 15 Sept. 1, 10, 20	
Bulls with 5 or more points	Aug. 15 Sept. 1, 10, 20	
Any caribou		Aug. 15 Sept. 1, 10, 20

Closing Dates:

Caribou: the latest closing date will normally be October 15, see also Appendix C, #3

One legal definition for the “5-point bull” regulation is preferred because it would simplify regulations and their enforcement. The recommended definition is “one antler which bears at least 5 points (each point or tine being at least 2.5 cm in length), including the tip of the main beam above the rear point”. Both sexes may require harvesting to meet population objectives.

◆ **Harvest Monitoring**

Compulsory inspection of all harvested caribou will continue. The Annual Hunter Sample and Guide-Outfitter returns will also continue so that data from unsuccessful and successful caribou hunters can be consolidated. Annual MU estimates of the number of hunters, number of days spent hunting, and number of caribou harvested will continue to be used to monitor trends in hunter demand and the harvest.

◆ **Population Monitoring**

Whenever possible, absolute abundance and sex/age composition will be monitored within established provincial caribou survey units every three to five years. For the northern ecotype, the survey method will be the stratified random block survey, conducted during winter with adjustments for sightability. Herd composition counts during fall, when caribou are concentrated on rutting ranges, may also be conducted to obtain calf recruitment rates. For the mountain ecotype, the primary survey method will be total counts in late winter subalpine habitats, with adjustments for sightability. Population modeling will be used to monitor population trends at the ecosystem level and, for the northern ecotype, may utilize cohort analyses for bulls, which incorporate harvest rate estimates (determined from population surveys) and harvest age composition data.

COAST BLACK-TAILED DEER HARVEST MANAGEMENT STANDARDS

◆ Management Constraints and Opportunities

Coast black-tailed deer populations are primarily limited by the quantity and quality of their habitats, winter snow levels, winter severity, and predation. Mortality through hunting is considered of secondary importance to these limiting factors. Although black-tailed deer are widely distributed and locally abundant throughout Vancouver Island, the adjacent south coast, and the Queen Charlotte Islands, suitable low-elevation wintering habitats in many areas have been pre-empted by urbanization, industrialization, and agriculture.

◆ Provincial Harvest Management Goals

In general, black-tailed deer will be managed to optimize populations within ecosystems while allowing for options and opportunities associated with viewing and hunting. Animal damage control seasons may be provided in areas where black-tailed deer cause moderate to severe crop damage. Diverse hunting experiences will be maintained through opportunities to hunt black-tailed deer on their winter range, in wilderness settings, and during special archery-only seasons.

◆ Hunting Policy Statement

Because of their population resiliency, particularly within second-growth forests, which provide an abundance of hiding and escape cover, black-tailed deer are less vulnerable to overharvest than mule deer. Thus, prescribed black-tailed deer hunting seasons may be more liberal than mule deer seasons. Where black-tailed deer hunting seasons are prescribed, the level of harvest will be adjusted to meet hunter demand within the constraints of conservation and allowance for non-hunting uses of the population. Antlerless hunting will normally be provided where a black-tailed deer population is increasing or where required to maintain a stable, prescribed balance with habitat carrying capacity. Liberal “any age/sex” seasons and bag limits may be maintained on the Queen Charlotte Islands where introduced Sitka black-tailed deer have caused substantial damage to forest regeneration. Wherever possible, black-tailed deer hunting regulations will be kept simple, uniform within ecosystem units, and consistent over time. Regulations will require that hunters remove the edible portions of the carcass to a place of consumption.

◆ **Regulating Harvest**

Black-tailed deer (both antlered and antlerless) will normally be harvested through GOS, with adjustments in bag limits and season lengths to regulate the harvest. However, LEH, particularly for antlerless deer, may be implemented where required to adjust harvest levels. With the exception of the Queen Charlotte Islands and Vancouver Island, the start of the GOS will normally be September 10 for bucks. Animal damage control seasons will be adjusted to meet local requirements. Archery-only seasons, where in effect, will usually occur 9 days prior to, and/or 10 days following the general open season.

<i>Opening Dates:</i>	<i>General Open Seasons</i>	<i>Limited Entry Hunting</i>
Any buck:	Sept. 10, 20 1st Saturday after Labor Day (Vancouver Is. only) June 1 (Queen Charlotte Is. only)	
Antlerless	Oct. 1, 10 Nov. 1	Oct. 1, 10 Nov. 1

Closing Dates:

Bucks: the latest closing date will normally be December 10, see also Appendix C, #3
Antlerless: the latest closing date will normally be November 30 for GOS and December 10 for LEH, except on the Queen Charlotte Islands where it will normally be February 28, see also Appendix C, #3

A standard opening date (September 10) for bucks as exists for other ungulates is proposed for black-tailed deer, except on the Queen Charlotte Islands (June 1) and Vancouver Island (first weekend after Labor Day). The standard open season is for “any buck” deer. Antler regulations will normally not be used to regulate buck harvests. Antlerless seasons will normally open on a standard calendar date. Both sexes may require harvesting to meet population objectives. Liberal seasons will be maintained on the Queen Charlotte Islands.

◆ Harvest Monitoring

For analysis of harvest trends, annual MU estimates of the black-tailed deer harvest, number of hunters, and number of days spent hunting will continue to be obtained through the annual Hunter Sample and Guide-Outfitter returns. Black-tailed deer teeth will normally not be collected through the Voluntary Tooth Return Program.

◆ Population Monitoring

Wherever possible, ground-based surveys (primarily spring spotlight counts) will be conducted to monitor black-tailed deer population trends (rather than absolute densities) and sex/age composition on established provincial black-tailed deer survey units (watersheds). The frequency and severity of winters and predator abundance within the survey units may also be monitored. Population modeling will be used to monitor population trends at the larger ecosystem level and will incorporate appropriate computer models that are able to integrate annual survey trends, harvest information, predator abundance and winter severity indices.

INTERIOR MULE DEER HARVEST MANAGEMENT STANDARDS

◆ Management Constraints and Opportunities

Mule deer populations are primarily limited by the quantity and quality of their habitats, and winter snow depths. In southern ecosystems, some populations are limited by competition for forage with white-tailed deer, elk, domestic livestock, and even mountain sheep or other animals co-occupying crucial habitats. Displacement of forage by noxious weeds or forest succession, or exclusion of mule deer from crucial habitats by land development can also be principal limiting factors. Road kills and hunting mortality may also be locally important. In northern ecosystems, the primary factors limiting mule deer populations are density independent winter severity and predation.

◆ Provincial Harvest Management Goals

In general, mule deer will be managed to optimize herd viability within their traditional ranges while allowing for options and opportunities associated with viewing and hunting. Management objectives may include the need to maintain, or restore where necessary, appropriate sex and age ratios within mule deer herds; or to maintain populations at an acceptable balance between elk, sheep, and other competitors for forage. Animal damage control seasons may be provided in areas where mule deer cause moderate to severe crop damage. Diverse recreational experiences will be offered by providing additional opportunities to hunt deer in wilderness settings, and during special archery-only seasons.

◆ Hunting Policy Statement

Mule deer are vulnerable to overharvest, particularly within open habitats. Where mule deer buck hunting seasons are prescribed, the level of harvest will be adjusted to meet hunter demand within the constraints of conservation, and allowance for non-hunting uses. Antlerless hunting will normally be provided where a mule deer population is increasing or where required to maintain a stable, prescribed balance with habitat carrying capacity. Wherever possible, mule deer buck hunting regulations will be kept simple, uniform within ecosystem units, and consistent over time. Regulations will require that hunters remove the edible portions of the carcass to a place of consumption.

◆ Regulating Harvest

Mule deer bucks will normally be harvested through GOS. Antlerless mule deer will be primarily harvested through LEH. For populations regulated primarily by density dependent factors, hunting

opportunities will normally be adjusted to provide a sustained annual harvest in accordance with herd productivity. For populations limited primarily by density independent winter severity, hunting opportunities will be regulated in accordance with the frequency and severity of winters. Thus, for these populations, more opportunities will normally be provided during periods of population growth following mild winters, while fewer opportunities will be provided following severe winters. Opening dates will normally be September 10 for buck GOS. The general hunting season may extend until December 10 in some MUs. Local differences in hunting pressure, animal damage, and herd productivity may necessitate some differences in opening and closing dates between adjacent MUs. Animal damage control seasons will be adjusted to meet local requirements. Archery only seasons, where in effect, will usually occur 9 days prior to (e.g., Sept. 1), and/or 10 days following, the firearm season.

<i>Opening Dates:</i>	<i>General Open Seasons</i>	<i>Limited Entry Hunting</i>
Any buck:	Sept. 10, 20 Oct. 10	Sept. 10, 20
Bucks with 4 or more points	prior to or following the “any buck” season	
Antlerless (may include spike bucks)	Nov. 1	Oct. 1, 10 Nov. 1

<i>Closing Dates:</i>
Bucks: the latest closing date will normally be December 10, see also Appendix C, #3
Antlerless: the latest closing date will normally be November 30, see also Appendix C, #3

The standard open season is for “any buck” deer. Where GOS can not safely regulate harvests, then antler restrictions and/or LEH “any buck” seasons may also be permitted. Normally, “4-point or greater” open seasons will only be used to provide additional hunting opportunities, either before or after the regular “any buck” season, and providing the number of prime (or mature) bucks is not reduced to below optimal levels. Both sexes may require harvesting to meet population objectives.

◆ **Harvest Monitoring**

For analysis of harvest trends, annual MU estimates of the mule deer harvest, number of hunters, and number of days spent hunting deer will continue to be obtained through the annual Hunter Sample and Guide-Outfitter returns. Where feasible, mule deer age structures will be monitored through a Voluntary Tooth Return program.

◆ Population Monitoring

Whenever possible, aerial surveys will be conducted every three to five years and will focus on monitoring the relative abundance (or absolute abundance where feasible) and sex/age composition on established provincial mule deer survey units. Site-specific surveys to address specific management needs may also be conducted. In areas where survey data are lacking and can not be obtained, special LEH seasons may be implemented to monitor antlerless mule deer trends. Where prescribed, the frequency and severity of winters within ecosystem units will be monitored through a standardized winter severity index. Survey data, harvest and hunter effort information, and winter severity indices may be incorporated into population models to assess population status and evaluate harvest strategies.

WHITE-TAILED DEER HARVEST MANAGEMENT STANDARDS

◆ Management Constraints and Opportunities

White-tailed deer populations are primarily limited by the quantity and quality of their habitats, and winter snow depths. In southern ecosystems, some populations may be limited through competition for forage with elk, domestic livestock, and sometimes mountain sheep or other animals co-occupying crucial habitats. Displacement of forage by noxious weeds or forest succession, or exclusion of white-tailed deer from critical habitats by land development can also be principal limiting factors in some ecosystems. Road kills and hunting mortality may also be locally important. In northern ecosystems, the primary factors limiting white-tailed deer populations are density independent winter severity and, possibly, predation.

White-tailed deer often benefit from habitat changes associated with land development, such as agriculture and logging. It is likely white-tailed deer will continue to increase and expand their range, due to the widespread nature of these developments.

◆ Provincial Harvest Management Goals

In general, white-tailed deer will be managed to optimize population sustainability within ecosystems while allowing for options and opportunities associated with viewing and hunting. Management objectives may include the need to maintain, or restore where necessary, appropriate sex and age ratios, or to maintain white-tailed deer populations at an acceptable balance between elk, sheep, and other competitors for forage. Animal damage control seasons may be provided in areas where white-tailed deer cause moderate to severe crop damage. Diverse recreational experiences will be offered by providing additional opportunities to hunt large-antlered bucks, to hunt white-tailed deer in wilderness settings, and during special archery-only seasons.

◆ Hunting Policy Statement

Because of their behavioural traits, habitat selection, and reproductive potential, white-tailed deer populations are less vulnerable to over-harvest than mule deer. Thus, prescribed white-tailed deer hunting seasons may be more liberal than mule deer seasons (e.g., longer general open seasons for bucks, more antlerless hunting opportunities). Where white-tailed deer hunting seasons are prescribed, the level of harvest will be adjusted to meet hunter demand within the constraints of conservation, and allowance for non-hunting uses of white-tailed deer. Antlerless hunting will normally be provided where a white-tailed deer population is increasing or where required to maintain a stable, prescribed balance with habitat carrying capacity. Wherever possible, white-

tailed deer hunting regulations will be kept simple, uniform within ecosystem units, and consistent over time. Regulations will require that hunters remove the edible portions of the carcass to a place of consumption.

◆ **Regulating Harvest**

White-tailed deer bucks will normally be harvested through GOS. Antlerless white-tailed deer will be harvested primarily through LEH. For populations regulated primarily by density dependent factors, hunting opportunities will normally be regulated to provide a sustained annual harvest in accordance with herd productivity. For populations limited primarily by density independent winter severity, hunting opportunities will be regulated in accordance with the frequency and severity of winters. Thus, for these populations, more opportunities will normally be provided during periods of population growth following mild winters, while fewer opportunities will be provided following severe winters. Opening dates will normally be September 10 for buck GOS. The general hunting season may extend until December 10 in some MUs. Local differences in hunting pressure, animal damage, and herd productivity may necessitate some differences in opening and closing dates between adjacent MUs. Animal damage control seasons will be adjusted to meet local requirements. Archery-only seasons, where in effect, will usually occur 9 days prior to (e.g., Sept. 1), and/or 10 days following, the firearm season.

<i>Opening Dates:</i>	<i>General Open Seasons</i>	<i>Limited Entry Hunting</i>
Any buck:	Sept. 10, 20 Oct. 10	
Antlerless (may include spike bucks)	Oct. 10	Oct. 10

<i>Closing Dates:</i>
Bucks: the latest closing date will normally be December 10, see also Appendix C, #3
Antlerless: the latest closing date will normally be October 31 for GOS and December 10 for LEH, see also Appendix C, #3

The standard open season is for “any buck.” Antler tine regulations will not be used to regulate buck harvests. Both sexes may require harvesting to meet population objectives.

◆ **Harvest Monitoring**

For analysis of harvest trends, annual MU estimates of the white-tailed deer harvest, number of hunters, and number of days spent hunting deer will continue to be obtained through the annual

Hunter Sample and Guide-Outfitter returns. Where feasible, white-tailed deer age structures will be monitored through the Voluntary Tooth Return Program.

◆ **Population Monitoring**

Whenever possible, surveys will be conducted every three to five years and will focus on monitoring white-tailed deer population trends and sex/age composition on established provincial white-tailed deer survey units. Ground surveys may be used periodically to determine the status of population density versus habitat capacity. Site-specific surveys to address specific management needs may also be conducted. Where prescribed, the frequency and severity of winters within ecosystem units will be monitored using a standardized winter severity index. Survey data, harvest and hunter effort information, and winter severity indices may be incorporated into population models to monitor population status and trends.

ELK HARVEST MANAGEMENT STANDARDS

◆ Management Constraints and Opportunities

Both Roosevelt and Rocky Mountain elk occur within the province. Roosevelt elk occur on Vancouver Island and the adjacent south coast, but are most common within suitable ecosystem units on northern Vancouver Island. Rocky Mountain elk are more widely distributed in the province, with the largest populations occurring in the East Kootenay and Peace-Liard subregions. Elk are primarily limited by the size and quality of their wintering habitats, predation and winter snow levels. Suitable low-elevation wintering habitats have largely been pre-empted by urbanization, industrialization, and agriculture. In addition, some populations may also be limited through competition for forage with deer, domestic livestock, and sometimes mountain sheep or other animals co-occupying crucial habitats. Road kills, hunting mortality, and poaching are additional factors that may limit elk populations in some areas.

◆ Provincial Harvest Management Goals

In general, elk populations will be managed to optimize viability within ecosystems while allowing for options and opportunities associated with viewing and hunting. Management goals may include the need to maintain, or restore where necessary, appropriate sex and age ratios; or to maintain elk populations at an acceptable balance between deer, sheep, and other competitors for ranges. Animal damage control seasons may be provided in areas where elk cause moderate to severe crop damage. Diverse recreational experiences will be offered by providing opportunities to hunt elk during the rut, in wilderness settings, and during special archery-only seasons. Because Roosevelt elk are a blue-listed species in British Columbia, they will be managed more conservatively than Rocky Mountain elk (a yellow-listed species).

◆ Hunting Policy Statement

Where elk hunting seasons are prescribed, the level of harvest will be adjusted to meet hunter demand within the constraints of conservation and allowance for non-hunting uses of the elk population. Cow and calf hunting will normally be provided where an elk population is increasing or where required to maintain a stable, prescribed balance with habitat carrying capacity. Where an elk population is unacceptably below potential carrying capacity due to recent occupation of new habitat or suppression by a mortality factor such as predation, cow and calf hunting will be limited or not provided. Wherever possible, elk hunting regulations will be kept simple, uniform within ecosystem units, and consistent over time. Regulations will require that hunters remove the edible portions of the carcass to a place of consumption.

◆ **Regulating Harvest**

Roosevelt elk will normally be harvested by LEH “any bull” regulation and guide-outfitter quota. In lightly hunted populations, bull Rocky Mountain elk will normally be harvested through a GOS “any-bull” or “3 or more points” regulation. For moderately hunted populations, antler regulations such as the “6 or more points” regulation may be applied. Heavily hunted populations may require a combination of regulations, including LEH and guide-outfitter quota, in order to achieve population objectives. Antlerless elk will normally be harvested under LEH, including cow and calf, or calf only seasons. Harvests will be adjusted to maintain post-season adult sex ratios above 20 bulls/100 cows. Bull GOSs will normally start on August 15, September 10, or September 20. Closing dates may vary according to local differences in hunter access, harvest pressure, or herd productivity. Animal damage control seasons will be adjusted to meet local requirements. Archery only seasons, where in effect, will usually occur prior to the bull GOS.

<i>Opening Dates:</i>	<i>General Open Seasons</i>	<i>Limited Entry Hunting</i>
Any bull or spike bull:	Aug. 15 Sept. 10, 20	Sept. 10 Oct. 10
Bulls with 3 or more points:	Aug. 15 Sept. 10 Oct. 1, 5, 10	
Bulls with 6 or more points:	Aug. 15 Sept. 1, 10	
Calf only:		Oct. 10, 20
Antlerless:	Aug. 15 Oct. 10	Aug. 15 Sept. 10 Oct. 10, 20 Nov. 10

<i>Closing Dates:</i>
Bulls: the latest closing date will normally be October 31, see also Appendix C, #3
Calf only and Antlerless: the latest closing date will normally be November 30, or December 15 (Vancouver Island only), see also Appendix C, #3

The recommended minimum point length for bull elk harvested by antler regulation is 2.5 cm (1 in.) in length. The “6-point bull” elk regulation may reduce the number of prime breeding bulls below optimal levels. Thus, this regulation will only be recommended where it can be demonstrated that adequate breeding is maintained.

It is recommended that hunters who have drawn a cow or calf elk LEH hunt not be restricted from hunting during the general open season. Both sexes (including calves) may require harvesting to meet population objectives.

◆ **Harvest Monitoring**

For analysis of harvest trends, annual MU estimates of the elk harvest, number of hunters, and number of days spent hunting elk will continue to be obtained through the annual Hunter Sample and Guide-Outfitter returns. Some areas may use compulsory inspection. Where required for management, harvest age compositions may be obtained through compulsory reporting of teeth to ensure unbiased tooth returns and adequate sample sizes.

◆ **Population Monitoring**

Whenever possible, absolute abundance and sex/age composition will be monitored on select winter ranges within established provincial elk survey units every three to five years. The survey method of choice will be the aerial stratified random block survey with sightability adjustments based upon both coastal and interior elk sightability models. Herd composition surveys to ascertain elk recruitment and bull/cow ratios may also be conducted as required. Population productivity (i.e., pregnancy rates, rut synchrony) may be monitored through analysis of reproductive tracts collected by hunters during late season antlerless hunts. Population modeling will be used to monitor population trends at the ecosystem level and will incorporate appropriate computer models that are able to integrate elk density survey estimates, harvest and hunter effort information, and reproduction/mortality data.

MOOSE HARVEST MANAGEMENT STANDARDS

◆ Management Constraints and Opportunities

Moose are widely distributed throughout the interior of the province. Within northern ecosystems, the primary natural factor currently limiting moose populations appears to be predation. Within southern ecosystems, moose are limited by the quality and quantity of forage and some physical aspects of their habitats (such as summer stress). Winter snow depth within mountainous areas, railroad kills, and hunting mortality may also limit some moose populations.

◆ Provincial Harvest Management Goals

In general, moose will be managed to optimize population sustainability within ecosystems while allowing for options and opportunities associated with viewing and hunting. Past hunting regulations that allowed the heavy harvesting of bulls have skewed bull age structures and adult sex ratios in many populations. One management goal, therefore, will be to maintain or, where necessary, restore appropriate sex and age ratios. Diverse recreational experiences will be offered through providing additional opportunities to hunt moose during the rut and in wilderness settings.

◆ Hunting Policy Statement

Where moose hunting seasons are prescribed, the level of harvest will be adjusted to meet hunter demand within the constraints of conservation and allowance for non-hunting uses of the moose population. Cow and calf hunting will normally be provided where a moose population is increasing or where required to maintain a stable, prescribed balance with habitat carrying capacity. Where a moose population is unacceptably below potential carrying capacity due to recent occupation of new habitat or suppression by a mortality factor such as predation, cow and calf hunting will normally be limited or not provided. Wherever possible, moose hunting regulations will be kept simple, uniform within ecosystem units, and consistent over time. Regulations will require that hunters remove the edible portions of the carcass to a place of consumption.

◆ Regulating Harvest

In lightly hunted populations, bull moose will normally be harvested through a GOS “any-bull” regulation. For moderately hunted populations, antler regulations such as the “tripalm” (legal mature bull moose) may be applied on a trial basis. Heavily hunted populations may require a combination of regulations, including GOS spike-fork bull (legal immature bull moose), LEH any-bull, and guide-outfitter quota in order to achieve population objectives. Antlerless moose will

normally be harvested under LEH. Harvests will be regulated to maintain adult sex ratios above 30 bulls/100 cows post-season⁵. Bull GOSs will normally start on August 15 for northern ecosystems and September 10 for southern ecosystems. A special late November to early December LEH cow season may be prescribed where reproductive data is needed for management. Closing dates may vary according to local differences in hunter access, harvest pressure, or herd productivity. Archery only seasons, where in effect, will usually occur prior to the bull GOS.

<i>Opening Dates:</i>	<i>General Open Seasons</i>	<i>Limited Entry Hunting</i>
Any bull:	Aug. 15 Sept. 10 Oct. 15	Aug. 15 Sept. 10, 20 Oct. 1, 15 Nov. 1
Bulls with less than 3 points: (i.e. Spike-fork bulls)	Sept. 10 Oct. 15	
Calf only:	Oct. 1, 15	Oct. 1, 15
Antlerless:		Oct. 1, 15 Nov. 1, 25 Dec. 1

Closing Dates:

Bulls: the latest closing date will normally be November 15, see also Appendix C, #3
Calf only and antlerless: the latest closing date will normally be December 10, see also Appendix C, #3

It is recommended that no general open season moose hunting restrictions be placed on hunters who are drawn for a cow or calf LEH moose hunt. Both sexes may require harvesting to meet population objectives.

◆ **Harvest Monitoring**

For analysis of harvest trends, annual MU estimates of the moose harvest, number of hunters, and number of days spent hunting moose will continue to be obtained through the annual Hunter Sample and Guide-Outfitter returns. Where required for management, harvest age composition may be obtained through compulsory reporting of teeth to ensure unbiased tooth returns and adequate sample sizes.

⁵ 30 bulls/100 cows postseason is an interim minimum accepted standard. This ratio is currently under review and may be substantially increased following further investigation.

◆ Population Monitoring

Whenever possible, absolute abundance and sex/age composition will be monitored within established provincial moose survey units every three to five years. The survey method will be the aerial stratified random block survey with sightability adjustments based upon a provincial moose sightability model. Herd composition counts to ascertain moose recruitment and bull/cow ratios may also be conducted as required. Population productivity (i.e. pregnancy rates, twinning rates, rut synchrony) may be monitored through analysis of reproductive tracts collected by hunters during late season antlerless hunts. Population modeling will be used to monitor population trends at the ecosystem level and will incorporate appropriate computer models that are able to integrate moose density survey estimates, harvest and hunter effort information, and reproduction/mortality data.

MOUNTAIN GOAT HARVEST MANAGEMENT STANDARDS

◆ Management Constraints and Opportunities

Mountain goats occur within suitable ecosystem units of the coast mountains, as well within suitable ecosystem units throughout the interior of the province. Coastal mountain goats are generally subjected to much more severe winter conditions (deep snow packs) and may be less productive and more sensitive to harvest than those within the interior of the province. Mountain goats, in the absence of substantial natural predation, are primarily limited by the availability of suitable wintering habitats. Exclusion of mountain goats from critical habitats by resource extraction development may limit mountain goat populations in some areas. Human disturbance or harassment of goats in areas of high public use may also affect the general welfare of goat herds.

◆ Provincial Harvest Management Goals

In general, mountain goats will be managed to optimize population sustainability within ecosystems while allowing for options and opportunities associated with viewing and hunting. Because of the difficulty in distinguishing billies from nannies, hunting is less selective for gender. Consequently, skewed adult sex ratios are less pronounced than in other ungulates. However, a large female component in the harvest could have a negative impact on mountain goat populations. Thus, hunters will be encouraged to select male mountain goats when hunting. Because coastal mountain goats may be more sensitive to overharvest than interior mountain goats, they will generally be managed more conservatively. Whenever possible, extirpated populations of mountain goats will be restored where habitat is suitable and where potential impacts on the ecosystem and people are acceptable.

◆ Hunting Policy Statement

Where mountain goat hunting seasons are prescribed, the level of harvest will be adjusted to meet hunter demand within the constraints of conservation and allowance for non-hunting uses. Wherever possible, mountain goat hunting regulations will be kept simple, uniform within ecosystem units, and consistent over time. An important consideration of management is that both sexes of mountain goats are uniquely valued for their meat, hides, and horns. Regulations will require that hunters remove the edible portions of the carcass to a place of consumption and submit specified parts (horns and lower jaw bearing the incisor teeth) for compulsory inspection.

◆ **Regulating Harvest**

Mountain goats will be managed through GOS only in those areas where the risk of overharvest is deemed to be low. Normally, in areas with easy access, and within provincial parks, LEH for mountain goats will be employed. Both GOS and LEH seasons will normally open on August 1, August 15 or September 1 for northern ecosystems; and September 1 or September 10 for southern ecosystems. Closing dates may vary according to local differences in hunting pressure and herd productivity.

<i>Opening Dates:</i>	<i>General Open Seasons</i>	<i>Limited Entry Hunting</i>
Any mountain goat:	Aug. 1, 15 Sept. 1, 10	Aug. 1, 15 Sept. 1, 10 Nov. 1

Closing Dates:

The latest closing date will normally be November 30, see also Appendix C, #3

◆ **Harvest Monitoring**

Compulsory inspection of all harvested mountain goats will continue. The Annual Hunter Sample and Guide-Outfitter returns will also continue so that data from successful and unsuccessful goat hunters can be consolidated. Annual MU estimates of the number of hunters, number of days spent hunting, and number of mountain goats harvested will continue to be used to monitor trends in hunter demand and the harvest. Tooth samples will continue to be obtained on a selective basis as a check against the horn-aging technique.

◆ **Population Monitoring**

Whenever possible, absolute abundance and sex/age composition will be monitored within established provincial mountain goat survey units (discrete mountain blocks) every three to five years. Where feasible, and where required to verify sightability, a sample of mountain goats will be marked and mark-recapture methods used to estimate total numbers. Additional site-specific surveys to address perceived localized overharvests may be conducted where required. Population modeling will be used to monitor population trends at the ecosystem level based upon appropriate computer models. Sanctuaries and non-hunting buffers may be established in selected areas to provide scientific benchmarks for monitoring population trends and comparing the effects of hunting and non-hunting on goat populations.

BIGHORN MOUNTAIN SHEEP HARVEST MANAGEMENT STANDARDS

◆ Management Constraints and Opportunities

Rocky Mountain bighorn sheep (*Ovis canadensis canadensis*) and California bighorn sheep (*Ovis canadensis californica*) are two subspecies of bighorn sheep occurring in B.C. Bighorn sheep are common within suitable ecosystem units throughout the southern and central interior of the province. One small population also occurs on the east slope of the Rocky Mountains south of Dawson Creek, B.C. Bighorn sheep numbers are limited primarily by the availability of winter range and escape terrain that provide access to forage and security from predators. Some populations are in competition for forage with domestic livestock, elk, deer, or other animals co-occupying critical habitats. Displacement of forage by noxious weeds or forest succession, or exclusion of bighorn sheep from critical habitats by land development may also be principal limiting factors in some ecosystem units. Predation is another factor limiting some sheep populations. Sheep are also susceptible to periodic winter die-offs associated with disease and severe weather. Populations under environmental stress, or making first contact with livestock such as domestic sheep, are particularly susceptible. Road kills and poaching are additional factors that may reduce recreational hunting opportunities in some sheep populations.

◆ Provincial Harvest Management Goals

In general, bighorn sheep will be managed to optimize population sustainability within ecosystems while allowing for options and opportunities associated with viewing and hunting. Whenever possible, extirpated populations of bighorn sheep will be restored using the appropriate subspecies where habitat is suitable and where potential impacts on ecosystems and people are acceptable. Hunting has been restricted primarily to the harvest of “3/4 curl” and “full curl” rams, and is believed to have skewed adult sex ratios and older ram age structures in most populations. One management goal, therefore, will be to maintain or, where necessary, restore appropriate sex and age ratios. Emphasis will be placed on maintaining an acceptable population balance of sheep versus elk, mule deer, and other wildlife with which sheep compete. Because bighorn sheep are a blue-listed species in British Columbia, they will be managed more cautiously than yellow-listed ungulates.

◆ Hunting Policy Statement

Where bighorn sheep hunting seasons are prescribed, the level of harvest will be adjusted to meet hunter demand within the constraints of conservation and allowance for non-hunting uses.

Wherever possible, sheep hunting regulations will be kept simple, uniform within ecosystem units, and consistent over time. Ewe and lamb hunting may be provided where sheep numbers have increased above population objectives, or where required to maintain a stable, prescribed balance with habitat carrying capacity. Where a sheep population is below potential carrying capacity due to recent occupation of new habitat or suppression by a mortality factor such as predation, ewe and lamb hunting will not normally be allowed. Regulations will require that hunters remove the edible portions of the carcass to a place of consumption and submit specified parts for compulsory inspection.

◆ **Regulating Harvest**

Where hunting seasons are prescribed, bighorn sheep will normally be harvested under a GOS “3/4 curl” or “full curl” regulation.⁶ LEH permits may include opportunities to hunt “any ram 1 year or older” and “ewe or lamb” sheep. If the harvest of large rams exceeds the annual allowable harvest (AAH), then LEH may be implemented to regulate the resident harvest. Quotas and/or administrative guidelines will be employed to regulate the guided non-resident harvest. The GOS for rams will normally start on September 10 for southern ecosystems, and August 15 for northern ecosystems. Hunting seasons will normally be closed by October 31. Special “ewe or lamb only” hunts may extend until November 30.

<i>Opening Dates:</i>	<i>General Open Seasons</i>	<i>Limited Entry Hunting</i>
Full curl or greater ram:	Aug. 15 Sept. 10	
3/4 Curl or greater ram:	Sept. 10	
Ram 1 year or older:		Sept. 1, 10, 20 Oct. 1, 15 Nov. 1, 15
Ewe or lamb		Sept. 10, 20 Nov. 1

<i>Closing Dates:</i>
Ram: the latest closing date will normally be October 31 for GOS, and November 30 for LEH, see also Appendix C, #3.
Ewe or lamb: the latest closing date will normally be November 30, see also Appendix C, #3

⁶ Consideration of other horn curl regulations, such as a 4/5 horn curl, will continue to be investigated as a possible alternative to existing regulations.

Both sexes may require harvesting to meet population objectives. LEH ram seasons are normally for any yearling or older ram to allow the distribution of the harvest over all age classes and to reduce enforcement problems. Although hunters will likely continue to select for larger rams, the regulation should result in some increased survival of older rams since smaller rams will also be harvested.

◆ **Harvest Monitoring**

Compulsory inspection of all harvested mountain sheep will continue. The Annual Hunter Sample and Guide-Outfitter returns will also continue so that data from successful and unsuccessful sheep hunters can be consolidated. Annual MU estimates of the number of hunters, number of days spent hunting, and number of sheep harvested will continue to be used to monitor trends in hunter demand and the harvest.

◆ **Population Monitoring**

Whenever possible, absolute abundance and sex/age composition will be monitored within established provincial bighorn sheep survey units (discrete mountain blocks) every three to five years. Selection of survey units will be based upon their representativeness within provincial ecoregions and logistic considerations. Where feasible, and where required to verify sightability, a sample of mountain sheep will be marked and mark-recapture methods used to estimate total numbers. Additional site-specific surveys will be conducted where required. Population modeling will be used to monitor population trends at the ecosystem level, and may utilize indices of habitat condition as reflected by growth performance from horn increments and recruitment (e.g., lamb-ewe counts).

THINHORN MOUNTAIN SHEEP HARVEST MANAGEMENT STANDARDS

◆ Management Constraints and Opportunities

Thinhorn sheep represent one species, *Ovis dalli*, with two subspecies occurring in British Columbia: *Ovis dalli dalli*, or Dall sheep, and *Ovis dalli stonei*, or Stone sheep. Dall sheep are white and Stone sheep are dark, but intermediate colours exist. All thinhorn sheep occur within suitable ecosystem units of northern B.C., but pure white strains of Dall sheep are restricted to the far north-western portion of the province. Thinhorn sheep are primarily limited by the availability of suitable winter-spring habitats, and predation. Generally, thinhorn sheep habitats are mostly secure due to the lack of competing land use. Exceptions are mining and oil-gas exploration and development within key sheep ranges. Increased encroachment of shrub growth onto winter-spring ranges may also be slowly reducing the quality of many sheep ranges. Prescribed burning has been a major management technique for restoring and maintaining these ranges, particularly within the northern Rocky Mountains.

◆ Provincial Harvest Management Goal

In general, thinhorn sheep will be managed to optimize population sustainability within ecosystems, while allowing for options and opportunities associated with viewing and hunting. Hunting has been restricted exclusively to the harvest of “full-curl” rams, and is believed to have skewed adult sex ratios and older ram age structures in many populations. One management goal, therefore, will be to maintain or, where necessary, restore appropriate sex and age ratios. Because thinhorn sheep are a blue-listed species, they will be managed more conservatively than yellow-listed ungulates.

◆ Hunting Policy Statement

Where thinhorn sheep hunting seasons are compatible with population objectives, the level of harvest will be adjusted to meet hunter demand within the constraints of conservation and allowance for non-hunting uses of thinhorn sheep. Wherever possible, sheep hunting regulations will be kept simple, uniform within ecosystem units, and consistent over time. Ewe and lamb hunting will not normally be allowed because most thinhorn sheep populations appear to be below habitat carrying capacity. Regulations will require hunters to remove the edible portions of the carcass to a place of consumption and submit specified parts for compulsory inspection.

◆ **Regulating Harvest**

Where hunting seasons are prescribed, thinhorn sheep will normally be harvested under GOS “full curl” regulation (i.e. any male thinhorn mountain sheep which has attained the age of eight years, or whose horn tip extends upwards beyond the forehead-nose bridge). Thinhorn sheep may also be managed under LEH regulations in some provincial parks and highly accessible areas. Quotas and/or administrative guidelines will be employed to regulate the guided non-resident harvest. The GOS for rams will normally start on August 1 and close by October 15.

<i>Opening Dates:</i>	<i>General Open Seasons</i>	<i>Limited Entry Hunting</i>
Full Curl or greater ram:	Aug. 1	
Ram 1 year or older:		Aug. 1

<i>Closing Dates:</i>
Ram: the latest closing date will normally be October 15, see also Appendix C, #3.

LEH ram seasons will normally be for any yearling or older ram in order to allow the distribution of the harvest over all age classes and to reduce enforcement problems. Although hunters will likely continue to select for larger rams, these seasons should result in some increased survival of older rams as younger rams will also be harvested.

◆ **Harvest Monitoring**

Compulsory inspection of all harvested mountain sheep will continue. The Annual Hunter Sample and Guide-Outfitter returns will also continue so that data from unsuccessful sheep hunters as well as successful hunters can be consolidated. Annual MU estimates of the number of hunters, number of days spent hunting and number of sheep harvested, will continue to be used to monitor trends in hunter demand and the harvest.

◆ **Population Monitoring**

Whenever possible, absolute abundance and sex/age composition will be monitored within established provincial thinhorn sheep survey units (discrete mountain blocks) every three to five years. The selection of survey units will be based upon their representativeness within provincial ecoregions and logistic considerations. Where feasible, and where required to verify sightability, a sample of mountain sheep will be marked and mark-recapture methods used to estimate total numbers. Additional site-specific surveys will be conducted where required. Population modeling will be used to monitor population trends at the ecosystem level and may utilize indices of habitat

condition as reflected by growth performance from horn increments. Cohort analyses that incorporate harvest rate estimates (estimated from total count surveys) and harvest age composition data may also be used to monitor the ram component and to determine desired harvest levels.

BLACK BEAR HARVEST MANAGEMENT STANDARDS

◆ Management Constraints and Opportunities

Black bears are widely distributed and numerous throughout the province. Black bear populations are primarily limited by the size and quality of their habitats, interspecific competition, and conflicts with humans. Isolated declines have occurred in areas where bears live adjacent to intensive human development. This has resulted from local concentrations and conflicts with people (e.g., at garbage dumps); loss, degradation, or alienation of bear habitat; and increased hunting pressure. International concerns about poaching black bears for trade in body parts (e.g., gall bladders and paws) may require increased enforcement.

◆ Provincial Harvest Management Goals

In general, black bears will be managed to optimize population sustainability within ecosystems while allowing for options and opportunities associated with viewing, hunting, and trapping. Diverse hunting experiences will be maintained through opportunities to hunt black bears in wilderness settings, and to hunt black bears during special archery-only seasons.

◆ Hunting Policy Statement

Where black bear hunting seasons are prescribed, the level of harvest will be adjusted to meet hunter demand within the constraints of conservation and allowance for non-hunting uses of the population. Wherever possible, black bear hunting regulations will be kept simple, uniform within ecosystem units, and consistent over time. Regulations will require that hunters remove the edible portions of the carcass to a place of consumption. Archery hunting and the use of tracking dogs will normally continue to be permitted. Because of international concern for bear species, all export and trade of black bear parts will be regulated according to the Convention on the International Trade of Endangered Species (CITES) agreement.

◆ Regulating Harvest

Black bears will normally be harvested through GOS, with adjustments in bag limits and season lengths to regulate the harvest. However, limited entry hunting (LEH) and guide outfitter quota may be implemented where required to adjust harvest levels. Hunting seasons will normally include both spring (April 1) and fall (August 15 or September 10) openings. The fall season, however, may be closed where local populations are shown to be susceptible to overharvest. Season lengths may vary in order to ensure that overharvests do not occur, or to allow extended opportunities for

hunters to harvest bears in areas where it is desirable to reduce bear numbers. There will be no open season on any two year or younger bear, or any bear in its company. Archery only seasons, where in effect, will usually occur prior to the GOS.

<i>Opening Dates:</i>	<i>General Open Seasons</i>	<i>Limited Entry Hunting</i>
Note: There is no open season on any two year or younger bear, or any bear in its company.	Apr. 1 Aug. 15 Sept. 1, 10, 20	Apr. 1 Aug. 15 Sept. 1, 10, 20

<i>Closing Dates:</i>
The latest closing date will normally be June 15 for spring hunts and November 30 for fall hunts, see also Appendix C, #3.

◆ Harvest Monitoring

For analysis of harvest trends, annual MU estimates of the black bear harvest, number of hunters and number of days spent hunting bears will continue to be obtained through the annual Hunter Sample and Guide-Outfitter returns. Hunters will be encouraged to submit bear teeth through the Voluntary Tooth Return program. Where required for management, harvest age composition may be obtained through a mandatory Tooth Return Program to ensure unbiased tooth returns and adequate sample sizes. The kill locations may also be collected for bears killed for harvest or control. Hair samples or tissue/blood samples may be requested for provincial genetic research.

◆ Population Monitoring

Absolute abundance of black bears is both difficult to determine and expensive. Research studies, combined with the operational use of remote cameras and other methods may be used to monitor abundance within established provincial black bear survey units. The Fuhr-Demarchi habitat model will be examined as a potential means for extrapolating population estimates to the larger ecosystem level. The process for determining population estimates from the habitat model will include estimates of habitat alteration, fragmentation and loss; and human-induced impacts of historic over-hunting and non-hunting kills. Records of relocated animals may be maintained provincially to assess control efforts.

GRIZZLY BEAR HARVEST MANAGEMENT STANDARDS

◆ Management Constraints and Opportunities

Grizzly bear populations are primarily limited by the quality and size of their habitats. Because of human intolerance, declines of grizzly bears have occurred in areas where bears live adjacent to intensive human development. This has resulted from both local concentrations and conflicts with people (e.g., at garbage dumps, livestock depredations), and from loss and alienation of grizzly bear habitat. The maintenance of viable grizzly bear populations requires large tracts of unsettled wild lands or wilderness. International concerns about poaching grizzly bears for body parts, such as gall bladders and paws, may require increased enforcement. The extirpation of grizzly bears from most of the western United States and the Canadian prairies reflects their vulnerability to human influence. Although grizzly bear populations may be declining in some areas of the province, in others their numbers have recovered substantially demonstrating that even sensitive species such as grizzly bears can expand their populations with effective wildlife management.

◆ Provincial Harvest Management Goals

In general, grizzly bears will be managed to optimize population sustainability within ecosystems while allowing for options and opportunities associated with viewing and hunting. Due to their historic and present vulnerability to hunting, the conservation of grizzly bears and their habitats will supersede all other activities related to harvest management.

◆ Hunting Policy Statement

Grizzly bears will be harvested only where hunting will not jeopardize population sustainability. Where grizzly bear hunting seasons are prescribed the level of harvest will be adjusted to meet hunter demand within the constraints of conservation and allowance for non-hunting uses. Wherever feasible, grizzly bear hunting regulations will be kept simple, uniform within ecosystem units, and consistent over time. Regulations will require that hunters remove the entire hide to a residence. Because of international concern for bear species, all export and trade of grizzly bear parts will be regulated according to the Convention on the International Trade of Endangered Species (CITES) agreement.

◆ Regulating Harvest

The accepted 3 year maximum annual mortality due to human causes, including hunting, will be 2% to 6%, of which no more than one-third will be females. Harvest rates at the high end of the

range must have adequate supporting population data. All areas of the province with GOS for grizzly bears will be placed on LEH. There will be no hunting season on any 2 year or younger bear, or any bear in its company. Hunting seasons will normally include a separate spring and fall season. A combined spring/fall season in the same calendar year is also an acceptable, but less preferred alternative.

<i>Opening Dates:</i>	<i>General Open Seasons</i>	<i>Limited Entry Hunting</i>
Note: There is no open season on any two year or younger bear, or any bear in its company.		Apr. 1 Sept. 1, 10, 20

<i>Closing Dates:</i>
The latest closing date will normally be June 15 for spring hunts and November 30 for fall hunts, see also Appendix C, #3.

◆ **Harvest Monitoring**

Compulsory inspection of all harvested grizzly bears will continue. For analysis of harvest trends, annual MU estimates of the grizzly bear harvest, number of hunters, and number of days spent hunting bears will continue to be obtained through Compulsory Inspection, Limited Entry reporting, and Guide-Outfitter returns. Harvest age composition data will continue to be collected through compulsory inspection. Site-specific kill locations will also continue to be collected in order to assess the potential for localized overharvesting. Wherever possible, harvests will be analyzed on a metapopulation basis, such as those represented by the grizzly bear management areas.

◆ **Population Monitoring**

Determining the absolute abundance of grizzly bears is both difficult and expensive. Research studies using radio-collared bears, combined with the operational use of remote cameras and other methods, will normally be used to monitor the abundance of bears within established provincial grizzly bear survey units whenever feasible. The Fuhr-Demarchi habitat model will be refined and tested and will be the primary method for extrapolating bear population estimates to the larger ecosystem level. The process for determining population estimates from the habitat model will include assessments of habitat alteration, fragmentation and loss; and human-induced impacts of historic over-hunting and non-hunting kills. Records of relocated animals will be maintained provincially to assess control efforts. Kill data, along with active monitoring of habitat suitability

and use may be conducted to assess population trends. Research on alternative methods to monitor population trends will be encouraged.

COUGAR HARVEST MANAGEMENT STANDARDS

◆ **Management Constraints and Opportunities**

Cougar populations are limited by the distribution and abundance of their principal prey species (deer, elk, and mountain sheep), and by interspecific competition. Isolated declines have occurred in areas where cougars live adjacent to intensive human settlements or livestock management areas. Populations located near the northern limits of their range may be more vulnerable to harvesting and will require special attention. The conservation of cougars and their habitats will be closely linked to management strategies for their prey.

◆ **Provincial Harvest Management Goals**

In general, cougars will be managed to optimize population sustainability within ecosystems while allowing for options and opportunities associated with viewing and hunting. Diverse hunting experiences may be maintained through opportunities to hunt cougars in wilderness settings, and to hunt cougars with hounds during winter.

◆ **Hunting Policy Statement**

Where cougar hunting seasons are prescribed, the level of harvest will be adjusted to meet hunter demand within the constraints of conservation and allowance for non-hunting uses of the population. "Pursuit-only" seasons using dogs may be permitted in areas where populations are not at risk. Wherever possible, cougar hunting regulations will be kept simple, uniform within ecosystem units, and consistent over time. Regulations will require that hunters remove the edible portions of the carcass to a place of consumption. Because of international concern for similar feline species, all export and trade of cougar parts will be regulated according to the Convention on the International Trade of Endangered Species (CITES) agreement.

◆ **Regulating Harvest**

Cougars will normally be harvested through GOS, with adjustments in bag limits and season lengths to regulate the harvest. Regional quotas and LEH may also be used to regulate cougar harvest in areas where hunter demand is greater than the estimated allowable harvest. Conversely, in some local areas where high cougar populations are adjacent to human settlements or livestock management areas and are in conflict with these uses, considerably higher harvest levels may be allowed. Normally, opening dates will be November 15 or December 1.

<i>Opening Dates:</i>	<i>General Open Seasons</i>	<i>Limited Entry Hunting</i>
Any Cougar	Sept. 10 Nov. 15 Dec. 1	

<i>Closing Dates:</i>
The latest closing date will normally be April 30, see also Appendix C, #3.

◆ **Harvest Monitoring**

Compulsory inspection (including return of upper and lower jaw) of all harvested cougars will continue to enable aging of animals. The Annual Hunter Sample and Guide-Outfitter returns will also continue so that data from successful and unsuccessful hunters can be consolidated. Annual MU estimates of the number of hunters, number of days spent hunting, and number of cougars harvested will continue to be used to monitor trends in hunter demand and the harvest. Kill locations may also be collected to evaluate kill distribution within MUs and to determine suitable areas where cougars can be relocated.

◆ **Population Monitoring**

As with other carnivores, the absolute abundance of cougars is expensive and difficult to determine. To date, there is no suitable cost-effective method for inventory of cougars. Investigation of techniques to estimate cougar populations will therefore be encouraged. In the interim, techniques including monitoring of prey availability, habitat suitability, hunter sightings of cougars, and habitat use shall continue to be used whenever possible to assess population trends in combination with harvest data.

WOLF HARVEST MANAGEMENT STANDARDS

◆ Management Constraints and Opportunities

Wolf populations are primarily limited by the distribution and abundance of their principal prey species (deer, elk, moose, caribou, mountain goat, mountain sheep, and bison) and intolerance of humans for wolves. Isolated declines have occurred in areas where wolves live adjacent to intensive human settlements or livestock management areas. The conservation of wolves and their habitats will be closely linked to management strategies for their prey. Wolves possess both high reproductive and recruitment rates, which fluctuate widely in response to the abundance and vulnerability of their prey. In addition, wolves are also highly mobile. Long term observation supported by recent research demonstrates that wolves possess the ability to significantly reduce and suppress principle prey populations, including large ungulates such as caribou and moose.

◆ Provincial Harvest Management Goals

In general, wolf-ungulate systems will be managed to optimize population sustainability for both predator and prey populations, while maintaining options and opportunities for viewing, hunting, and trapping wolves. More liberal hunting seasons may be provided in areas where wolves are suppressing prey populations below optimal levels.

◆ Hunting Policy Statement

Generally, wolf harvests are incidental to hunting activities of other species. Wherever possible, wolf hunting regulations will be kept simple, uniform with ecosystem units, and consistent over time. Control of wolves may be essential for the maintenance of ungulate populations in some areas. Removal of specific problem animals, where required to protect agricultural animals, will be conducted by government personnel.

◆ Regulating Harvest

Wolves will normally be harvested through GOS, with adjustments in bag limits and season lengths to regulate the harvest. Opening dates will normally start on August 1 in northern ecosystems and on September 10 in southern ecosystems. The closing date may extend until June 15. Special control measures to reduce wolf numbers may be necessary in areas with high wolf densities and demonstrated prey declines, and where harvesting and trapping are not effective at regulating wolf numbers at desired levels.

<i>Opening Dates:</i>	<i>General Open Seasons</i>	<i>Limited Entry Hunting</i>
Any Wolf	Aug. 1 Sept. 10	

<i>Closing Dates:</i>
The latest closing date will normally be June 15, see also Appendix C, #3.

◆ **Harvest Monitoring**

For analysis of harvest trends, annual MU estimates of the wolf harvest, number of hunters, and number of days spent hunting wolves will continue to be obtained through the annual Hunter Sample and Guide-Outfitter returns. Compulsory inspection and mandatory skull and lower jaw return may be used to monitor harvests.

◆ **Population Monitoring**

Whenever possible, wolf abundance will be monitored within provincial ungulate survey units. For northern ecosystems, absolute densities will be monitored using the Alaskan “snow-tracking” technique. For southern ecosystems, relative abundance may be determined from scat transects, howling surveys, and wolf sightings (from hunter samples). Where more refined information is needed, radio-telemetry studies may be employed.

MIGRATORY GAME BIRD HARVEST MANAGEMENT STANDARDS

◆ Management Constraints and Opportunities

Migratory game birds (ducks, geese, coots, doves, band-tailed pigeons and snipe) are managed under the federal *Migratory Birds Convention Act* of 1994, and as game birds under the provincial *Wildlife Act*. Jurisdiction is thus shared with the federal government. Management is generally carried out cooperatively between the Canadian Wildlife Service (CWS), representing the federal authority and the BC Environment, Wildlife Program. Because of their migratory habits, there are interprovincial and international implications to migratory game bird management.

The welfare of waterfowl is directly linked to the preservation and enhancement of wetland habitats that support a diversity of species.

◆ Provincial Harvest Management Goal

Provincial migratory gamebird populations are part of the Pacific Flyway population and will be managed accordingly. Generally, migratory gamebirds will be managed to optimize population sustainability while allowing for options and opportunities associated with viewing and hunting. Diverse recreational experiences will be maintained through opportunities to harvest migratory gamebirds in upland and wetland settings, and to hunt with archery equipment in addition to shotguns.

◆ Hunting Policy Statement

Where migratory game bird seasons are prescribed, the level of harvest will be adjusted to meet hunter demand within the constraints of conservation and allowance for non-hunting uses of birds. Harvesting will not be allowed when populations drop below current Pacific Flyway Management Plan thresholds for harvest cessation, when there is legitimate conservation concern, or when public safety is compromised. Wherever possible, migratory gamebird hunting regulations will be kept simple, uniform within ecosystems, and consistent over time. As of 1995/96, it will no longer be legal to hunt waterfowl with toxic shot (lead content of more than 2%).

◆ Regulating Harvest

Harvest levels, season dates and species, or area closures will be set in cooperation with the CWS, and in accordance with Pacific Flyway management programs. In some instances, based on local knowledge, provincial regulations may be more restrictive than federal regulations, but never more

liberal. Season dates and bag limits may vary between regions and MUs in response to differences in local availability of species and hunting pressure. Special seasons or bag limits may be implemented in response to local crop depredation or health problems.

◆ **Harvest Monitoring**

For analysis of harvest trends, annual MU estimates of the harvest, number of hunters, and number of days spent hunting migratory game birds will continue to be obtained through the annual Hunter Sample returns. Where required for management and where available, CWS wing survey and harvest questionnaire data, and Pacific Flyway population harvest data will also be used. The latter two sources, in most cases, provide harvest information by species, age, and sex.

◆ **Population Monitoring**

The Pacific Flyway aerial winter and breeding ground surveys, along with banding efforts conducted by federal and state/provincial agencies, will continue to be used to monitor waterfowl populations. The BC Environment, Wildlife Program will participate in these efforts where appropriate, but will attempt to avoid duplication of effort. Other data sources that will be considered include the annual Breeding Bird Surveys and Christmas Bird Counts.

UPLAND GAME BIRDS HARVEST MANAGEMENT STANDARDS

◆ Management Constraints and Opportunities

The reproductive rate of most upland game birds is very high. Most forest grouse follow cycles of abundance and relative scarcity independent of hunting. Weather conditions at hatch and predator numerical lag are two factors that may play a role in affecting grouse abundance. Upland game birds occur within most ecosystem units of the province. Large scale land use practices have influenced upland game bird habitat. Changing agricultural practices have influenced the distribution and abundance of many introduced upland game bird populations. Habitat for some species of game birds can be enhanced by burning, brush-cutting, or modification of current logging practices, but these alternatives are usually prohibitively expensive if carried out solely for production of upland game birds.

◆ Provincial Harvest Management Goal

In general, upland game birds will be managed to optimize population sustainability within ecosystem units while allowing for options and opportunities associated with viewing and hunting. Diverse recreational experiences will be offered through opportunities to harvest upland game birds in a variety of habitats and with a variety of methods. Because the sharp-tailed grouse and white-tailed ptarmigan are blue-listed species, they will be managed more conservatively than other upland game birds.

◆ Hunting Policy Statement

Where upland game birds seasons are prescribed, the level of harvest will be adjusted to meet hunter demand within the constraints of conservation and allowance for non-hunting uses of birds. Wherever possible, upland game bird hunting regulations will be kept simple, uniform within ecosystems and between species, and consistent over time. Hunting will not be allowed in areas where legitimate conservation concerns warrant closure. Conservation of native species will take preference over that of introduced species.

◆ Regulating Harvest

Upland game birds will generally be harvested through GOS. A notable exception is the wild turkey, an introduced species, which normally will be harvested through LEH. The opening dates for native grouse (including blue grouse, ruffed grouse, spruce grouse, sharp-tailed grouse) will normally be September 1 or 10, except on Vancouver Island (Saturday preceding Labor Day).

Ptarmigan will normally open August 15 in northern ecosystems and September 1 for southern ecosystems. For introduced species (including chukar partridge, gray or Hungarian partridge, California quail, bobwhite quail, ring-necked pheasant, and wild turkey) the standard opening date will normally be October 1, except for wild turkeys, which are currently only available under a spring LEH. Closing dates will be standardized wherever possible. Possession bag limits will normally be three times the daily bag limit for all upland game birds. For some species and in some areas, however, season length and bag limit adjustments may be required to regulate hunting pressure. Area closures may also be implemented in specific MUs where season length and bag limit adjustments are inadequate to maintain harvests and hunting pressure within acceptable levels.

<i>Opening Dates:</i>	<i>General Open Seasons</i>	<i>Limited Entry Hunting</i>
Blue Grouse	Sept. 1, 10	
Ruffed Grouse	1st Saturday preceding Labor	
Spruce Grouse	Day (Vancouver Is. only)	
Sharp-tailed Grouse	Sept. 10	
Ptarmigan	Aug. 15	
Partridges and Quail	Sept. 1, 10	
Pheasant	Oct. 1	
	Sept. 10	
	Oct. 1	
Wild Turkey		Apr. 20 Jun. 1

<i>Closing Dates:</i>
The latest closing dates will be: Blue Grouse, Ruffed Grouse, and Spruce Grouse - Dec. 31; Sharp-tailed Grouse, Partridges and Quail - Nov. 30; Ptarmigan - Feb. 28; Pheasant - Nov. 15; and Wild Turkey - May 10; see also Appendix C, #3.

The proposed open seasons for upland game birds should optimize hunting opportunities without resulting in long-term negative impacts on populations.

◆ **Harvest Monitoring**

For analysis of harvest trends, annual MU estimates of the harvest, number of hunters, and number of days spent hunting upland game birds will continue to be obtained through the annual Hunter Sample returns.

◆ **Population Monitoring**

Site-specific surveys to address specific management needs will be conducted where feasible. Other existing sources of data, such as Breeding Bird Surveys, Christmas Bird Counts, Conservation Data Centre records, Status Reports, and the annual trapper survey will be consulted to monitor trends in upland game bird populations and ensure species conservation.

FURBEARERS HARVEST MANAGEMENT STANDARDS

◆ Management Constraints and Opportunities

Furbearers represent a diverse group of wildlife species that require considerable management flexibility. Some species are cyclic (e.g., lynx), some are widely distributed through suitable ecosystems throughout the province (e.g., beaver), while others have a much more limited distribution (e.g., bobcat). Some have adapted well to human-caused disturbances and create conflicts with agricultural or residential interests (e.g., coyotes), while others appear to require large tracts of wilderness (e.g., wolverines). The ability to provide a surplus for harvesting also varies greatly among species. All species, particularly beaver, marten, lynx, and muskrat, are very important economically to the trapping industry in British Columbia.

◆ Provincial Harvest Management Goal

In general, populations of furbearers will be managed to optimize sustainability within ecosystem units while allowing for options and opportunities associated with viewing, hunting, and trapping. Eight of the 17 commercially harvested furbearer species will be harvested only through commercial trapping, while nine species will be managed for diverse opportunities to harvest by both trapping and hunting⁷. Some furbearer subspecies are either red- or blue-listed and will be managed more conservatively.

◆ Trapping and Hunting Policy Statement

The management strategy for furbearers province-wide will promote humane and biologically sound harvests with a minimum of regulatory control. Where possible, furbearer trapping and hunting regulations will be kept simple, uniform within ecosystems, and consistent over time. Trapping opportunities will be adjusted to maintain viable furbearer populations and to meet trapper demand. Hunting opportunities will be maintained for wolves, coyotes, lynx, bobcats, foxes, and raccoons.

◆ Regulating Harvest

Furbearers will normally be trapped and hunted through GOSs that are based on pelt quality and species vulnerability. The system of registered traplines and the Wild Fur Harvest System will

⁷ Species trapped only: beaver, marten, mink, muskrat, squirrel, weasel, fisher, and river otter. Species trapped and hunted: raccoon, skunk, fox, coyote, wolf, lynx, bobcat, wolverine, and black bear.

continue to be the primary method for managing furbearers for trapping and setting harvest guidelines. Trapline management will be guided by species management strategies, with furbearers being divided into three classes:

- *Class 1 Species* can be managed on individual traplines. Trappers will be provided with the best information available to develop harvest strategies. This class includes beaver, fox, marten, mink, muskrat, raccoon, skunk, squirrel, and weasel.
- *Class 2 Species* move between and among traplines, and thus are not manageable on individual traplines. Harvests will be regulated regionally in consultation with local trappers. This class includes lynx, bobcat, wolverine, fisher, and otter. Greater care will be given to managing these species, and seasons will be set to protect vulnerable age groups, in particular the breeding females.
- *Class 3 Species* also move between and among traplines, but generally are not vulnerable to over-trapping. This class includes the wolf and coyote. Trappers may be trained to trap Class 3 species, especially in areas of chronic animal damage control problems.

<i>Opening Dates:</i>	<i>Trapping Seasons</i>	<i>Hunting Seasons⁸</i>
Beaver	Oct. 1, 15	
Muskrat	Oct. 1, 15	
	Nov. 15	
River Otter, Mink	Oct. 1, 15	
	Nov. 1, 15	
Bobcat, Lynx	Nov. 15	Nov. 15, Dec. 1
Marten, Weasel and Fisher	Nov. 1	
Wolverine	Nov. 1	Oct. 15
Skunk, Fox	Oct. 15	
Coyote	Oct. 15	Sept. 1, 10
Wolf	Oct. 15	Aug. 1
	Nov. 1	Sept. 10
Raccoon	Oct. 1	Sept. 1
	Jan. 1	
Squirrel	Nov. 1	
Black Bear	Oct. 15	Apr. 1
		Aug. 15
		Sept. 1, 10, 20

⁸ Skunk and raccoon are Schedule "B" animals, and thus may be captured or killed for the specific purpose of protecting property, unless an open season is designated by regulation. A 'no closed season' for coyotes may be allowed.

Closing Dates: Trapping

The latest closing dates will be: Beaver, Muskrat and River Otter - May 31; Mink - Feb. 28; Bobcat and Lynx - Feb. 15; Marten and Weasel - Mar. 15; Fisher, Wolverine, Skunk, Coyote and Fox - Feb. 28; Wolf - Jun. 30, Raccoon and Squirrel - Mar. 31; and Black Bear - May 31; see also Appendix C, #3.

Closing Dates: Hunting

The latest closing dates will be: Bobcat and Lynx - Mar. 31; Wolverine - Jan. 31; Coyote - Jun. 31; Wolf - Jun. 15, Raccoon - Mar. 31; and Black Bear - Jun. 15 (spring hunts) and Nov. 30 (fall hunts); see also Appendix C, #3.

For some furbearers, and in some regions, there will be no trapping season (e.g., bobcat, lynx, weasel, fisher, wolverine, fox, wolf and black bear). Compulsory inspection will be required for some species in specific areas or regions. Some species may also have area-related special possession limits.

For wolverines, due to lack of inventory and potential threatened status in the interior of the province (wolverines are a blue-listed species), LEH may be implemented where there are local concerns with population sustainability. Some areas of the province will continue to be closed to the harvesting of wolverine.

Registered traplines within provincial parks are subject to the B.C. Park Act and Park regulations. Trappers are required to obtain a Park Use Permit to trap and use any trapline cabins within a provincial park or recreational area.

◆ **Harvest Monitoring**

Annual harvest of furbearers will continue to be obtained through the legally required *Fur Trader Monthly Purchase Record* and the *Fur Royalty Receipt* and/or *Fur Export Permit*. These records will be maintained by the Wild Fur Harvest Data System, which maintains records by trapline area, Wildlife Management Unit, administrative region and on a provincial basis.

◆ **Population Monitoring**

In addition to annual furbearer harvest information, furbearer population trend information and furbearer prey/food trend observations will continue to be obtained through the annual Trapper Survey questionnaire. Biological monitoring of species and/or area-specific information may be

facilitated by periodic surveys, compulsory inspection, or voluntary biological samples, as necessary, for Class 2 species and wolf.

FALCONRY CAPTURE MANAGEMENT STANDARDS

◆ Management Opportunities and Constraints

Several species of native raptorial birds are commonly captured for use in falconry. Because of habitat loss and environmental contamination from pesticides, some species have seriously declined. Reproductive rates vary between species, but are usually directly related to the supply of prey. All species are protected and may be captured only under permit.

◆ Provincial Capture Management Goal

Falconry will be managed to provide limited live-capture opportunities for raptorial birds to qualified people for purposes of falconry or commercial breeding, where feasible throughout the province. Diverse recreational experiences may be offered through opportunities to capture selected raptor species in a variety of habitats and with a variety of methods.

◆ Capture Policy Statement

Falconry is an acceptable use of these species. Where opportunities for the live-capture of raptors are prescribed, the level of harvest will be adjusted within the constraints of conservation and allowance for non-capture (e.g., viewing) uses of birds. Wherever possible, falconry capture procedures will be kept simple, uniform, and consistent over time. In order to ensure humane husbandry, minimum requirements for captive facilities will have to be met before capture permits will be issued. Only immature, eyas or passage, birds will be allowed to be captured.

◆ Regulating Capture

Live-capture of raptorial birds will be regulated through permit. Except for gyrfalcons, raptor capture seasons will normally be from May 15 to January 15. Capture seasons for gyrfalcons will be more intensively regulated and seasons may vary accordingly. Species and subspecies, and area closures will be implemented where a conservation concern is identified. Capture will not be permitted for Red-listed taxa. Capture will be limited to two birds per falconer per season throughout the province. There are three categories of raptorial birds:

- *Class 1*: includes falconry species of special management concern for which access to capture will be most restrictive, if allowed at all. Includes gyrfalcons, ferruginous hawks, and peregrine falcons.

- *Class 2*: includes falconry species of less management concern for which capture will generally be allowed, providing all permit requirements have been met. Includes northern goshawk (subspecies *atricapillus*), Cooper's hawk, sharp-shinned hawk, red-tailed hawk, merlin, and American kestrel.
- *Others*: raptor species not included in Class 1 or 2 generally will not be available for capture for falconry purposes.

◆ **Capture Monitoring**

As a condition of permit, all falconers will be required to fill out and return a Raptor Capture Report Form indicating the species caught, age of the bird, and general location of capture. These records will be coordinated by the provincial Bird Specialist and a summary report will be prepared annually.

◆ **Population Monitoring**

Site-specific surveys to address specific management needs will be conducted where feasible. Other existing sources of data, such as Breeding Bird Surveys, Christmas Bird Counts, Conservation Data Centre records, and Status Reports will be consulted to monitor trends in populations and ensure species conservation.

Live capture of raptorial birds within provincial parks are subject to the Park Act and Park regulations. Falconers are required to obtain a Park Use Permit prior to any capture activities within a provincial park or recreation area.

APPENDIX A

TREND IN HUNTING LICENCE SALES

British Columbia's hunting licence sales (hunter numbers) increased from about 67,400 in 1950 to a peak of 174,100 in 1981, and declined to 113,100 in 1994 (Figure 1). Surveys to determine reasons for the decline in hunter numbers revealed that factors, including rising costs and competition from other activities such as skiing and golfing, were most common. Licence costs were also cited as a reason for the decline in hunter numbers, although other costs associated with hunting were far greater. These costs and competing recreational opportunities are factors beyond the control of the Wildlife Program. However, two additional reasons given by lapsed hunters that are entirely within the purview of the Wildlife Program were the increasing complexity and the restrictiveness of the provincial hunting regulations.

Although there are many valid reasons why current hunting regulations are more complex and restrictive than 20 years ago (e.g., increased vehicular access and hunting technologies, increasing urbanization, lack of adequate scientific data for management, recovery of large predator populations, etc.), many hunters have become more frustrated with the complexity of regulations governing hunting opportunities. In a brief to the Minister of Environment, Lands and Parks from the 35,000-member British Columbia Wildlife Federation dated October 3, 1994, President Bob Morris, stated:

“Our members, and hunters generally, are becoming increasingly frustrated with the complexity of these [hunting and firearms] regulations. We would like to see more simplified, standardized and liberalized regulations including consistency of seasons for all species within and among management regions and units where feasible.”

Figure 1. Hunting Licence Sales by Year.

APPENDIX B

TYPICAL HARVEST MANAGEMENT TOOLS

The Wildlife Program recognizes the following primary tools in regulating and managing harvest of game species:

- timing of hunting seasons (e.g., restrictions when most vulnerable)
- length of season
- restrictions on areas open for hunting (e.g., Management Units)
- gender restrictions (i.e., males, females)
- age restrictions (i.e., old, young)
- antler point/horn curl restrictions (e.g., 3-point elk, full curl bighorn sheep)
- weapon restrictions (e.g., archery)
- access restrictions (e.g., road closures creating refugia)
- bag limits (e.g., regional, annual)
- participation restrictions (e.g., LEH, permits)
- harvest allocation (e.g., aboriginal people, non-residents)
- enforcement of regulations to foster compliance (e.g., Conservation Officer Service)

These variable harvest prescriptions are in addition to prerequisite management standards and prohibitions, such as:

- hunting equipment restrictions (e.g., helicopters, electronic calls)
- fair chase restrictions (e.g., use of lights)
- bait restrictions
- licence fees
- hunter registration (e.g., CORE prerequisite)

APPENDIX C

GUIDELINES FOR PRESCRIBING HUNTING AND TRAPPING SEASONS

1. Where there is a hunting or trapping season for a given species, the harvest regulations will normally conform to the standards outlined in this document for that species. Departures from the standardized regulations must be based on adequate supporting data for the specific animal population. An example of such a circumstance is an animal damage control season.
2. Harvest prescriptions for a wildlife population will be based upon specified management objectives that are consistent with the Harvest Management Principles and Species Management Standards of the WHS. Where feasible, management objectives will include population, harvest, and hunting day objectives.
3. Season opening and closing dates will normally be a specified calendar date (e.g., Sept. 10) rather than a specified day of the week (e.g., Saturday) in order to accommodate early establishment of hunting and trapping regulations and to improve the accuracy of harvest data. Season opening dates will normally be on either the 1st, 10th, 15th, or 20th day of the specified month.⁹ Season closing dates will normally be on either the 10th, 15th, 20th, 25th, or the last day of the specified month.
4. Generally, major new regulations will be evaluated for at least one year prior to being officially accepted or rejected. The evaluation must include a biological, social and economic assessment of the regulation.
5. In lightly hunted ungulate populations, adult males will normally be harvested through a GOS “any adult male” regulation. For moderately hunted populations, antler point/horn curl regulations may be applied to further regulate harvests in order to meet management objectives. Heavily hunted populations will likely require a combination of different regulations, including limited entry hunting to regulate harvests and meet management objectives.
6. Where sex and age ratios must be improved, in order to meet population objectives, the reduction in harvest of the sex/age component in shortest supply (e.g., mature adult males) will be the first priority. However, increased hunting of other components (e.g., adult females and juveniles) will normally also be considered where recruitment is sufficiently high and/or population levels exceed objectives.

7. Antler point/horn curl regulations specifying exclusive harvest of one or a group of age classes will normally be used only where such a regulation reflects consensus of the hunting public and where such harvests will not jeopardize population sustainability. The use of antler point/horn curl regulations for LEH is generally not recommended, but may be accepted under special circumstances.
8. Limited entry hunting regulations will be set in accordance with Limited Entry Hunting Policy and Procedures.
9. Limited Entry Hunting seasons will be prescribed when:
 - a reduced general open season for a given species, or other constraints such as sex or antler restrictions, cannot provide adequate assurance that the hunter harvest will fall within the allowable harvest specified, commensurate with population management objectives; or
 - required for special circumstances.
10. A hunting or trapping season will normally be closed when:
 - the appropriate Regional Wildlife Section Head, Regional Fish and Wildlife Manager and the Provincial Wildlife Species Specialists agree that a harvested population is unable to produce a demonstrated surplus above the specified population objective;
 - an ecological reserve or non-harvested scientific benchmark is required;
 - public consensus (including hunters and trappers) deem the season to be undesirable for scientific or safety concerns;
 - directed by the Minister of Environment, Lands and Parks.
11. In areas where a wildlife population is causing significant property damage (including vehicular collisions or agricultural crops), liberalized harvest opportunities will be considered in conformance with Wildlife Program Policy and Procedures providing:
 - substantial protective measures are inadequate; and
 - anticipated harvest can reasonably be expected to reduce the conflict (with acceptably low risk to human safety).
12. Archery-only deer hunting seasons, where in effect, will normally occur 9 days prior to, and/or 10 days following the general open season. Archery-only elk, caribou, moose and black bear

⁹ Because of the high percentage of private land on Vancouver Island, the opening dates for grouse and deer (bucks) will normally be the first Saturday preceding and first Saturday following Labor Day, respectively.

seasons, where in effect, will normally occur prior to the general open season. Exclusive archery-only seasons may also be prescribed in areas deemed unsafe for the discharge of rifles or shotguns.

13. Appropriate and adequate biological and social rationales must be provided for all changes in seasons and bag limits. This must include the anticipated impacts of regulation changes on shifts in hunter distribution and harvest pressure, both within and between wildlife management regions.
14. All regional hunting and trapping regulations recommendations must be signed off by both the Regional Wildlife Section Head and the Regional Fish and Wildlife Manager of the originating region, prior to submission to the Deputy Director, Wildlife Branch. Where the Regional Wildlife Section Head and the Regional Fish and Wildlife Manager cannot agree, recommendations of each will be submitted to the Director of Wildlife, via the Deputy Director, for a final decision. Each separate recommendation must be supported by a full rationale, including reference to public understanding and acceptance of the regulation and the consultations effected to gain that understanding, as well as any supporting information of a technical nature related to meeting the goals of the Wildlife Program.
15. All recommendations must be reviewed by the appropriate Wildlife Program species specialist(s) in Victoria and approved by the Chief of Wildlife.
16. Seasons for which the rationale includes extraordinary circumstances may be referred to a technical harvest management committee for review and advice.
17. In cases where rejection of a recommendation is contemplated by headquarters, the region making the recommendation must be advised of the reason(s) and given the opportunity to provide additional relevant information. If additional information is provided, the recommendation will be re-assessed.
18. Hunting regulation changes of provincial significance will be forwarded to the Provincial Hunting Regulations Advisory Committee (PHRAC) for review and advice.
19. Following technical headquarters review, all recommendations must be approved by the Deputy Director before proceeding through Order-in-Council (or other process).
20. For hunting and trapping regulations specific to Parks, the Regional Manager of Fish and Wildlife and the District Manager of Parks will review potential changes and jointly sign all

recommended changes to those regulations before they are forwarded to the Director of Wildlife.

APPENDIX D

PRINCIPLES OF EXPLOITATION OF WILDLIFE POPULATIONS

Although exploitation may be defined as any form of artificially induced mortality, in this case it refers specifically to mortality attributed to hunting and trapping. Peek (1986:285-286) summarized the principles of exploitation, which are reproduced below:

Silliman and Gutsell (1958) provided the following principles involved in the theory of exploitation:

1. Any exploitation of an animal population reduces its abundance
2. Below a certain exploitation level, animal populations may be resilient, increasing their survival and/or growth rates and production rates to compensate for the individuals removed.
3. Where populations are regulated primarily through density-dependent processes, exploitation rates (up to the maximum sustained yield) will tend to increase productivity and reduce natural mortality of the remaining individuals.
4. Exploitation rates can reach a point at which extinction of the population will occur if continued.
5. Somewhere between no exploitation and excessive exploitation there lies a level at which the maximum sustained yield can be obtained.
6. The maximum exploitation rate is at least partially a function of the biotic potential or production rate of the species.
7. The age composition and the number of animals remaining after exploitation are key factors in the dynamics of exploited animal populations.

Caughley (1976:227) provided additional principles about yield curves:

1. If a population is stable in numbers (at carrying capacity) it must be reduced below that density to generate a croppable surplus.
2. For each density to which a population is reduced, there is an appropriate sustained yield.
3. For each sustained yield, there are two density levels from which it can be harvested.
4. There is only one density at which a maximum sustained yield may be harvested.

Holt and Talbot (1978) provide assumptions in using yield curves:

1. The population is more or less self-contained;
2. The population has attained, before exploitation began, a steady state at carrying capacity;
3. There are no significant trends in carrying capacity during the period of exploitation;
4. The nature of the implied density dependence in reproduction and natural mortality, and in particular, any time lags in the response of the population to exploitation, are not such as to cause fluctuations of large amplitude in the population.
5. The process of reducing the initial population by exploitation is reversible.

Holt and Talbot (1978) point out that the effects of exploitation on age composition is often ignored, as is the effect on social organization and behaviour. Obviously, if exploitation tends to reduce the age structure of a population where older animals are most fecund, the effect on reproduction and survival of young will not be compensatory. Significant trends in carrying capacity are often related to changes in habitats, which again illustrates the intimate tie between population and environment, and implies that attempts to assess population response to exploitation without assessment of critical habitat factors will often be only partially valid.

References:

- Caughley, G. 1976. Wildlife management and the dynamics of ungulate populations. *Applied Biology* 1: 183-246.
- Holt, S.J. and L.M. Talbot. 1978. New principles for the conservation of wild living resources. *Wildl. Mongr.* 59. 33 pp.
- Peek, J. 1986. A review of wildlife management. Prentice-Hall, Englewood Cliffs, New Jersey.
- Silliman and Gutsell. 1958. Experimental exploitation of fish populations. *USDI Fish and Wildlife Service Fish Bull.* 58:214-252.

APPENDIX E

DESIGNATED WILDLIFE

All native species of animals in the province excluding invertebrates and fish have been designated as wildlife, giving them full protection under provisions of the *Wildlife Act*, SBC 1982, Chapter 57. These species may not be hunted, killed, captured, kept as pets or used for commercial purposes unless specifically allowed by regulation or by authority of a permit from B.C. Environment. The accompanying two schedules list the wildlife that may be considered as nuisance or pests:

- Schedule “B” lists animals that may be captured or killed only for the specific purpose of protecting property unless an open season is designated by regulation.
- Schedule “C” contains animals that may be captured or killed anywhere and at any time in the province (no closed season). These mostly introduced species are detrimental to property and native wildlife.

Schedule B

1. Rough-skinned newt
2. Townsend’s mole
3. coast mole
4. snowshoe hare
5. all of the species of the family Arvicolidae - voles and lemmings, except muskrat
6. bushy-tailed woodrat
7. all species of the genus *Peromyscus* - deer mice
8. porcupine
9. northern pocket gopher
10. yellow-bellied marmot
11. woodchuck
12. Columbian ground squirrel
13. striped skunk
14. raccoon
15. spotted skunk

Schedule C

1. American bullfrog
2. all species of the family Chelydridae - snapping turtles
3. North American opossum
4. eastern cottontail
5. European rabbit

6. nutria
7. grey squirrels
8. all species of the genus *Corvus* - Crows, except the common raven
9. black-billed magpie
10. house sparrow
11. European starling
12. rock dove
13. brownheaded cowbird

GLOSSARY OF TERMS

Some of the wildlife management terms used in this document may not be familiar to all readers and are, therefore, defined below.

Active adaptive management: Harvest management by experimentation and population monitoring in order to determine optimal harvest levels in managed populations.

Allowable harvest: The optimum number of animals that can be removed by harvesting from a herd or population and that can be replenished to meet management objectives through the population's natural productivity.

Antler point, or "tine": A branch of an antler that is longer than the breadth of its base and at least 2.5 cm (1 inch) in length.

Big game: means any mountain sheep, mountain goat, bison, caribou, elk, moose, deer, grizzly bear, black bear, cougar, wolf, or other animal designated as big game by regulation.

Blue-listed taxon (taxa): Species or subspecies considered to be vulnerable and that could become eligible for the Red List (endangered or threatened) in the foreseeable future. The Blue List includes species that are generally believed to be vulnerable, but for which information is too limited to allow designation in another category (see vulnerable species, Red-listed taxa).

CORE: Conservation and Outdoor Recreation Education Program; an educational program designed to ensure that prospective hunters meet acceptable standards of knowledge and skill for safe and ethical participation in hunting.

Critical habitat: Habitat that is vital to the health and maintenance of one or a variety of species for a range of activities, such as nesting, denning, feeding, breeding, etc.

Demography: The study of population factors, such as birth rate, death rate, age distribution, sex ratio, and size (numbers).

Density dependent factors: Factors that cause the proportion of the population dying or emigrating to increase, or the proportion entering a population through births or immigrants to decrease, as population density increases.

Density independent factors: Factors affecting population growth (birth and death rates, immigration and emigration) that are unrelated to density (see also density dependent factors).

Ecoregion (classification): A unit within the ecoregion classification framework that describes units of land representing areas with similar climatic processes, physiography, vegetation zonation, and wildlife potential. Units are mapped in a hierarchical structure from ecodomain (global), ecodivision (continental), ecoprovince (subcontinental), ecoregion (provincial), to ecosection (regional). Ecoprovinces, ecoregions, and ecosections are loosely referred to as provincial ecosystems.

Ecosystem: An ecosystem is a functional unit consisting of all living organisms in a given area and all the non-living physical and chemical factors of the environment; can be of any size, but functions as a whole unit; also, see Ecoregion classification.

Endangered species: An indigenous (native) species, subspecies, or geographically separate population that is threatened with imminent extirpation or extinction throughout all or a significant portion of its range.

Eyas: A nestling raptor that has not yet fledged.

Falconry: The capture, training, and use of raptorial birds for hunting purposes.

Furbearer: For the management purposes of the B.C. Wildlife Branch, a fox, badger, beaver, black bear, marten, fisher, Canada lynx, bobcat, mink, muskrat, river otter, raccoon, skunk, red and Douglas squirrel, sea otter, weasel, wolverine, wolf, or coyote.

Game species: means big game, small game, game birds and fur bearing animals, and other species designated as game by regulation.

Game bird: Any grouse, partridge, quail, pheasant, ptarmigan, migratory game bird, or bird designated by regulation.

General Open Season (GOS): The calendar dates during which it is legal to hunt a particular game species, providing the hunter has the required licenses. The open seasons for each game species are provided in regional schedules in the *Hunting And Trapping Regulations Synopsis*.

Genetic variability: Genetic or inherited variations within a population that arise from the mixing of genes and chromosomes, especially in sexual reproduction.

Habitat: The environment of, and place where, an organism lives.

Habitat carrying capacity: The maximum number of animals of a given population supported by the available habitat in a specified area.

Harvested wildlife: Includes game species, additional species harvested by aboriginal people, species live-captured for zoos or research, falconry, and other uses specified by permit.

Horn curl regulations: Regulations that specify ram mountain sheep legal for harvest; includes full curl bighorn ram, 3/4 curl bighorn ram, and full curl thinhorn ram regulations.

Hunt and hunting: Includes shooting, attracting, searching for, chasing, pursuing, following after or being on the trail of, stalking, or lying in wait for wildlife or attempting to do any of those things, whether or not the wildlife is subsequently wounded, killed, or captured;

- a) with intention to capture the wildlife; or
- b) while in possession of a firearm or other weapon.

Indigenous species: A species native to British Columbia.

Limited Entry Hunting (LEH) seasons: Limited entry hunting seasons are open only to hunters who have drawn an appropriate limited entry authorization (see also general open season).

Metapopulation: a set of spatially disjunct populations, among which there is some immigration.

Migratory game birds: Bird species for which there is an open season in B.C. and for which a Canadian Migratory Bird hunting permit is required; species are: waterfowl (ducks and geese, including brant); coot; common snipe; and mourning dove.

Non-game species: any species designated as wildlife by regulation, and which is normally not harvested.

Northern ecosystems: Generally refers to those ecosystems within the following ecoprovinces: Northern Boreal Mountains, Taiga Plains, and Boreal Plains) found in the Polar ecodeviation. This includes MUs 6-17 to 6-29, 7-19 to 7-22, 7-31 to 7-37, and 7-39 to 7-58.

Passage: A juvenile raptor that has already fledged (see Eyas).

Population: A group of individuals from the same species that are demographically, genetically, or spatially separated from other groups of individuals.

Population monitoring: The process of collecting and analyzing demographic information to evaluate population status and trend.

Population sustainability: Probability that a harvested population will persist for an indefinite period of time across its range despite normal fluctuations in population levels due to environmental conditions.

Provincial Hunting Regulations Advisory Committee (PHRAC): A committee that advises on hunting and regulations issues of provincial significance. PHRAC is chaired by the Deputy Director of Wildlife and includes representatives from the B.C. Wildlife Federation, Guide-Outfitters Association of B.C., a regional Fish and Wildlife Manager, and a regional Wildlife Section head.

Public consensus: General agreement by the public, including hunters. This is normally determined by the Fish and Wildlife Manager and the regional Wildlife Branch staff in consultation with selected representatives of stakeholder groups.

Quota: The total number of a game species or the total number of a type of game species specified by the Regional Manager that the clients (non-resident Canadians or non-Canadians) or a class of client of a guide-outfitter may kill in the guide-outfitter's guiding area, or part of it, during a licence year, or part of it.

Raptor: A bird of prey, either in the Order Falconiformes, which includes vultures, eagles, falcons, and hawks; or in the Order Strigiformes, which includes owls; for management purposes, includes the eggs of these birds.

Recruitment: The number of animals within a population at a specified stage of life, usually juveniles at one year of age.

Red-listed taxon (taxa): A list of candidate species and subspecies to be considered for legal designation under the B.C. *Wildlife Act* as endangered or threatened. It also includes four species already listed as endangered: sea otter, burrowing owl, American white pelican, and Vancouver Island marmot. These are taxa that either have very small local populations or biological characteristics (and habitat requirements) that make them imperiled. Placing taxa on this list flags them as being at risk and requiring investigation (see also Endangered species).

Selective harvest: A harvest prescription that restricts the harvest by gender (i.e. male or female), age (i.e. juvenile or adult), and/or by horn curl or antler regulation (e.g., furl curl bighorn sheep, 4 point mule deer).

Small game: means animals designated as small game by regulation.

Southern ecosystems: Generally refers to those ecosystems within the ecoprovinces occupying the Dry and Humid Temperate ecoregions. This normally includes all MUs within the Vancouver Island, Lower Mainland, Thompson-Okanagan, Kootenay, and Cariboo regions, as well as MUs 6-01 to 6-16, 7-01 to 7-18, 7-23 to 7-30, and 7-38.

Species: A group of individuals that have their major characteristics in common and are potentially interfertile.

Subspecies: A subset of a species occupying a particular geographic area or, less commonly, a distinct habitat; capable of interbreeding with other members of the same species.

Sustainable Use: Use of an organism or ecosystem at a rate within its capacity for renewal or regeneration.

Threatened species: An indigenous species, subspecies, or geographically separate population likely to become endangered if the factors affecting its vulnerability are not reversed.

Voluntary Tooth Return Program (VTR): A program to encourage successful hunters to submit a tooth sample from their harvested black bear, moose, deer, or elk so that the exact age of the animal can be determined; also called the Harvest Card Tooth Return Program

Vulnerable species: An indigenous species, subspecies, or geographically separate population particularly at risk because of low or declining numbers, small range (limited habitat), or for some other reason, but not a threatened species.

Wildlife: Includes raptors, threatened species, endangered species, game, and other species of vertebrates prescribed as wildlife (including fish) in the B.C. *Wildlife Act*.

Yellow-listed taxon (taxa): Species or subspecies not considered to be threatened, vulnerable, or endangered.