North Coast LRMP

Information Circular

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Black Bears in the North Coast

INTRODUCTION

Black bears (*Ursus americanus*) are ubiquitous on the North Coast. They occur throughout the plan area, although some of the outer islands do not appear to be occupied. Black bears are thought to have re-colonized the BC coast after the last ice age from a refugia that was located between Prince Rupert and Haida Gwaii (Byun et al. 1997). The size, density, and trends of coastal black bear populations have been investigated (Kellner 1993, MacHutchon 1999, Peacock 2001), but definitive information is not available. NCLRMP densities are estimated between 200 and 500 bears per 1000 km^2 but trends are unknown. Local conflict with black bears around communities is common throughout the Plan Area, and where conflicts are chronic bear densities are likely below natural levels.

*Ursus americanus kermo*deii is recognized as a distinct sub-species resident on the central and north coast but has been differentiated on the basis of skull and tooth measurements, rather than on the periodic occurrence of a white colour phase. The white colouration is due to a single nucleotide substitution in the melanocortin-1 receptor gene (Mc1r) (Ritland et al 2001). The gene is recessive, which means that two genes are required to express the white coat. Many individuals carry only one gene, so they appear like normally coloured black bears but they carry the genetic potential to pass the white coat colour onto the next generation. The distribution of the white phase or Kermode bears in the Plan Area is clumped, with the highest frequency occurring on Gribbell Island (Marshall and Ritland 2002). These distinctive animals, named the "Spirit Bear" by conservation groups, have become a symbol of the coastal rainforest. They are also used as an emblem by the town of Terrace and may be used as the symbol of the 2010 Olympic games. Commercial black bear viewing in the plan area is increasing in popularity, primarily associated with the viewing of Kermode bears.

Coastal black bears take advantage of a wide variety of vegetative and animal food sources. Spring habitats include beaches, estuaries, forested and non-forested

wetlands, skunk cabbage swamps and avalanche chutes. Summer berry habitats include low, mid and high-elevation open forests and forest openings (MWLAP 2001). The fall diet is heavily oriented to spawning Pacific salmon, although some north coastal black bears appear to be less dependent on salmon than grizzly bears (MacHutchon, pers comm.). This is probably because their ability to fish for salmon is influenced by the presence of the larger grizzlies (MacHutchon et al. 1998, Jacoby et al. 1999). Regardless, fishing is a key component of the annual ecology of black bears (Reimchen 1998a, 1998b and 2000) and the supporting role of these animals in maintaining forest productivity (through the transport of salmon carcasses away from streams) has been clearly demonstrated (Reimchen et al. 2003).

Coastal black bears are dependent on old-growth structure for winter denning (Davis 1996, Manning, Cooper and Associates 2003). Den cavities are most often found inside large (greater than 1.4m diameter) standing live, standing dead or downed dead trees or logs. Black bears will den in second growth stands in old-growth stumps (Davis 1996). A successful den is energetically efficient (dry) but also secure from predators (e.g. wolves, other bears). As a consequence, some dens are elevated (up to 20 m above ground level) and den openings are small relative to body size. Coastal black bears do not den in rock cavities. Tree cavities are most often found in Western red cedar (*Thuja plicata*) and Yellow cedar (cypress) (*Chamaecyparis nootkatensis*) and cavity re-use is common (Davis 1996).

Habitat security in the form of climb trees (particularly for adult females and their cubs) appears to be an essential element of coastal black bear habitat. The highest rate of cannibalism determined for a North American black bear population was recorded in the Nimpkish River valley on Northern Vancouver Island (Davis and Harestad 1996). Females with cubs will not forage far from climb trees while feeding in openings.

PLANNING ISSUES RELATED TO BLACK BEARS

Issues of concern related to black bears on the North Coast are:

a. Mortality risk associated with human food and garbage;

b. Mortality risk associated with connected road networks;

c. Protection of critical denning and foraging habitat;

d. Provision of stable landscape level forage supply (and possibly forest plantation damage by black bears);

e. Requirement for suitable Wildlife Trees as escape trees in and near forest openings;

f. Displacement from preferred habitat or habituation as a result of bear viewing, including viewing of Kermode bears; and,

g. Potential disruption of the white coat colour gene frequency through a variety of human influences.

a. Mortality risk associated with human food and garbage

Successful prevention of unnecessary mortality associated with so-called “problem” bears is a combination of: a) prevention of bear access to attractants (e.g. garbage, pet food, compost, fish remains); b) location of buildings and facilities away from naturally attractive habitats; c) education (including human safety); d) enforcement of waste management permits and regulations; and e) influencing public values and attitudes about bears. Strategic land use planning could influence mortality risk associated with bear human conflict by including an objective regarding the location and waste management standards for remote industrial and commercial tourism facilities (e.g. “bear proofing”).

b. Mortality risk associated with connected road networks

Most of the road networks in the NCLRMP area are not connected to public roads. However, those few that are, and any future connected roads, constitute a significant mortality risk to black bears. Wherever possible, these roads should be located to avoid important critical habitats (beaches, estuaries, forested and non-forested wetlands, skunk-cabbage swamps, avalanche chutes, riparian areas). Where this is not possible, visual screening with natural vegetation should be considered. Limiting road use to only industrial traffic will minimize the potential for bear human conflict and resulting black bear mortalities.

c. Provision of critical forest structure

The provision of adequate black bear denning habitat in managed coastal landscapes is critical to individual bear survival and population productivity. Loss of potential den cavities in large, old trees can be addressed through management at the stand level through the implementation of "enhanced wildlife tree patches". Reserving areas within cutblocks that are at least 1 hectare in size that contain standing live trees of adequate size (> 1m diameter and > 5 m height) will reduce the long-term risk to denning habitat. Leaving large structured downed wood on cutblocks will provide additional opportunities for denning habitat. Applying variable retention harvesting may also address issues around the need for structure within managed stands, as long as suitable large trees are retained in areas of harvest. Retention patches can be "anchored" at existing or potential black bear dens.

Retention of regularly spaced Wildlife Tree Patches or old-growth retention patches within or adjacent to recently-logged openings will enhance habitat suitability for black bears by providing escape cover (climb trees) for vulnerable sex and age classes. These areas provide the additional benefits of thermal cover for bedding when it is hot or wet and as source areas for understory forage species for potential re-colonization of forest openings in subsequent rotations.

Stand level management to maintain coarse filter biodiversity, with "enhanced wildlife tree patches" in cutblocks, will contribute to the structural requirements of black bears.

d. Provision of stable landscape level forage supply (and possibly forest plantation damage by black bears)

The stability of landscape level forage supply is a priority issue for grizzly bears (Hamilton and Horn 2003) but is less of an issue for black bears. Although coastal black bears have greater resilience to human alteration of their habitats than grizzlies, short rotation forestry with adherence to regional stocking targets can influence local black bear populations by creating a managed, partially fragmented landscape that has large areas of mid-seral forest with poor potential for understory forage growth. Stable rates-of-cut (as opposed to "boom" and "bust" cycles), variable density planting and/or variable retention harvesting will help provide gappiness in managed stands and stabilize landscape level forage production. Greater emphasis on the distribution of food producing post-logging habitats will also assist: although black bears will congregate in open clearcuts, this may result in greater social conflict (Davis and Harestad 1996).

On the coast, both young and old seral forests provide good forage potential at the landscape scale. Although not common in coastal British Columbia, forest plantation damage by black bears is common in coastal Washington and Oregon (Ziegltrum and Nolte 2001, Collins et al. 2002). Damage to western redcedar by black bears in a naturally regenerated 25 year old forest in mid-coastal BC was 64 to 67% in spaced and control stands respectively (Sullivan 1993). The total percentage of completely girdled stems was 23% in the spaced stand and 11% in the control (unspaced) area. Ensuring adequate landscape level forage supply will likely prevent such high levels of tree damage.

e. Protection of critical habitat

As mentioned above, critical habitats for black bears include beaches, estuaries, forested and non-forested wetlands, skunk cabbage swamps, salmon spawning areas, berry patches in openings, and avalanche chutes. Protection of seasonally critical habitats is as equally important for black bears as it is for grizzly bears. While black bear populations are more resilient, they too require adequate amounts of critical habitat that is well distributed throughout their home ranges. As mentioned, avoiding critical habitats during development will help prevent unnecessary bear mortalities.

f. Displacement from preferred habitat or habituation as a result of bear viewing, including viewing of Kermode bears

Bear viewing in the NCLRMP is an increasingly popular activity, both recreationally and commercially (Hamilton and Horn, 2003). Viewing for Kermode bears occurs within Gitga'at tradional territory and the Gitga'at have worked with tourism operators to develop management guidelines for bear viewing as well as conduct viewing trips of their own (D. Cardinall, pers. comm).

The LRMP Table has addressed bear viewing by identifying specific sites for land-based bear viewing across the plan area and may endorse a set of provincial guidelines for land-based bear viewing The Table has proposed designating a site for intensive black bear viewing near to Prince Rupert. This site would need to be managed carefully to minimize displacement and habituation of bears and associated repercussions in terms of bear-human interactions and bear mortality (Chi and Gilbert, 1999). Potential impacts can be minimized by implementing land-based bear viewing guidelines, as well as applying incremental strategies to minimize the level of interaction between bears and humans. These include seasonal windowing, control of group size, separation of viewers from preferred bear habitat by managing human access, and stringent measures to control garbage and other attractants.

g. Potential disruption of the white coat colour gene frequency through a variety of human influences

There is repeated speculation that hunting black bears in areas where Kermode bears occur will reduce the frequency of white coat colouration. Although there is no evidence that this is occurring, prudent hunting management is warranted given the uniqueness of the gene (white bears are currently protected from hunting). In addition, researchers speculate that human activity that increases the immigration of black bears that do not carry the recessive white coat gene into areas where Kermodes are common might depress the occurrence of the white phase individuals (Ritland et al. 2001).

SUMMARY

Although little specific information is available on the status and trend of black bear populations in the NCLRMP, they are not considered to be at risk. Ecosystem-based management at the stand and landscape scale, as addressed through management objectives for coarse filter biodiversity, riparian management, grizzly bears, and other wildlife (ungulates and marbled murrelets) will help to mitigate the potential increases in human caused mortality associated with motorized access on connected road networks. These measures should also provide stable, landscape-level forage supply, protect critical habitat (including dens), ensure recruitment of future tree den cavities, and provide escape trees in forest openings. Additional objectives are needed to prevent bear-human conflict over garbage and other attractants and careful management to prevent undue displacement of black bears from preferred seasonal congregations through effective viewing management. Carefully managed legal hunting in the distribution of the Kermode and steps to prevent

immigration of black bears where Kermode bears are common will help to maintain the strength of the white phase genotype.

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