WHITEHORSE AND SOUTHERN LAKES FOREST RESOURCES MANAGEMENT PLANNING

ISSUES AND INTERESTS of
WILDLIFE CONSERVATION SOCIETY CANADA

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Introduction

We have written this Issues and Interests document in response to the Yukon Forest Management Branch's request for public and stakeholder input to the Whitehorse and Southern Lakes Forest Resources Management Planning process. This is a fairly general and strategic summary of what we see as the major Issues that strategic forest management planning needs to address, with some emphasis on the Interest of Wildlife Conservation Society Canada (WCS Canada). Our interest is conservation of wildlife habitats, but we try to couch this in the broader set of values that forests support and supply.

We summarize Issues in a Table which attempts to relate the societal values that are intrinsic to forest resources and landscapes to the key management considerations and processes these values engender, and then to the planning tools that we think the plan should consider. Our ultimate goal is to explore the necessary and sufficient tools and processes a Plan needs to address. We provide considerably more detail on wildlife habitat because that is our particular interest.

Next, we explore in more detail the specific trade-offs and synergies that may result between and among values when the various planning tools and processes are employed. This leads to recommendations on potential content of the Plan.

Planning Context

The planning region does, or potentially could, support protected area, agricultural, mining, and urban land uses and designations that are largely exclusive of forest management. These need to be addressed at a strategic scale, ideally in a regional land use plan. This Forest Resources Management planning process needs to maintain sufficient flexibility in land use zoning to avoid the risk of prejudicing other land uses envisaged by a future Regional Land Use Plan as mandated by the Umbrella Final Agreement.

The values supported by the forested land base are sometimes incompatible in space or time. Their spatial or temporal scales and contexts need to be addressed in zoning and other management tools.

TABLE: A Summary of Key Values that Forest Landscapes Support, with Outline of Resultant Management Considerations and Resultant Planning Tools.

VALUE	MANAGEMENT CONSIDERATION or PROCESS	PLANNING TOOL
WILDLIFE HABITAT	Disturbance Regime – fire: Suppress / allow / emulate?	ZONING; HARVEST REGIME – Spatial scale / rate / prescription
	Disturbance regime – insect	MITIGATION?
	Wetland conservation (focal species: nesting birds	WETLAND MAPPING & BUFFERING; ZONING; MANAGEMENT GUIDELINES – Sufficiency & detail?
	Riparian management – Lake and stream (focal species: nesting songbirds)	MANAGEMENT GUIDELINES – Sufficiency & detail?
	Habitat Connectivity (focal species: thinhorn sheep; grizzly bear; river otter)	LANDSCAPE LINKAGES; ROUTE-SPECIFIC MAPPING (Terrestrial and aquatic)
	Focal Species – extensive seral / structural needs (e.g., caribou; snowshoe hare – lynx; cavity nesting birds; marten)	HARVEST / DISTURBANCE REGIME – Spatial scale / rate prescription; ZONING;
	Focal Species – local high-value habitats (e.g., northern goshawk; osprey; bald eagle; migratory water-birds; fisher)	INVENTORY; SPATIAL BUFFER and TIMING WINDOW; ZONING.
	Climate Change – new disturbance regimes; new precipitation regimes; biome shift	HARVEST REGIME – Spatial scale / treatment; FIRE SUPPRESSION REGIME;
ENERGY	Cord wood – commercial and private licensing	ACCESS; HARVEST – rate / prescription; ZONING
	Biofuel – salvage and green - planning and licensing	ACCESS; HARVEST – rate / prescription; ZONING
SAWLOG	Log harvest - licensing	TIMBER HARVEST PLANS; ACCESS; HARVEST – rate / prescription; ZONING; FIRE SUPPRESSION
FOOD & MEDICINAL PLANTS	Free entry or licensed – commercial / private.	ACCESS; FIRE SUPPRESSION; HARVEST RATE
WATER	Flow regimes and water quality (turbidity; chemistry) – fish habitat supply and quality	RIPARIAN MGMT GUIDELINES – sufficient?; EQUIVALENT CLEARCUT AREA
RECREATION	Areas / routes for in-forest recreation (hiking, skiing; biking; ORVs) and forest-context recreation (boating)	ZONING; FIRE SUPPRESSSION; VIEWSCAPES
RESIDENTIAL MATRIX	Outside-Whitehorse residential areas – forest landscapes	FIRE SUPPRESSION; FIRE SMARTING; VIEWSCAPES; ZONING
TRADITIONAL TRAILS	Conserve and facilitate	ZONING; SPATIAL BUFFER;

WILDLIFE HABITAT CONSIDERATIONS

A number of planning tools stand out as necessary components of the FRMP because they recur repeatedly in the Table: Fire Suppression; Zoning (value-specific); Timber Harvest rates and prescriptions; Access Management. Other tools are also valuable, and are discussed in the context of the previous ones, or on their own. We make suggestions and recommendations for the Plan in italics.

FIRE SUPPRESSION / DISTURBANCE MANAGEMENT

A commonly-held principle in boreal forest management is the emulation of natural disturbance regimes, especially wildfire. Such emulation is particularly valuable for wildlife habitat conservation When followed, it allows habitat supply to occur at ecologically suitable spatial and temporal scales, with the distribution of age classes of forest stands fitting within the range of natural variability. Across the diversity of wildlife, there are numerous species well adapted to, and dependent on, the full range of forest age classes at spatial scales produced by wildfire or other disturbance mechanisms. When timber harvesting is extensive in a region, fire suppression is a necessary management tool, without which a combination of fire and harvesting drives the forest age class distribution outside the range of natural variability.

The current age class distribution in the forest inventory shows limited representation of very young forest stands (< 10 years), and a high representation of mature to old forest stands (> 90 years). This distribution probably reflects a history of fire suppression coupled with the fact that large and frequent fires have not been common in those portions of this forest region with strong coastal climate influence. Forest management needs to be based on a fairly detailed understanding of the variety of natural disturbance agents (wildfire, insect, windthrow, single-tree death) and regimes, because these lead to divergent harvest prescriptions and divergent expectations for ecologically suitable age class distributions.

Fire suppression is currently used as a land management prescription in significant parts of this forest region, not to manage timber resources, but to reduce risk to private property and public infrastructure. Presumably this will continue. However, when there is fire suppression the recruitment of young forest stands is severely reduced, leading to a progressively older set of forest stands over time. Consequently, intensive timber harvesting, especially with clear-cut prescription, is best contemplated within the fire suppression zone.

Where the “wilderness” zone (without fire suppression) overlaps areas where fire is the dominant disturbance agent, extensive harvesting of living forest stands is best avoided because fire is likely to satisfy the need to recruit younger forest stands. However, this zone can provide significant harvestable wood by salvage logging of recent burns. Such salvage harvesting for fuelwood has the advantage of taking this harvest pressure off portions of the fire suppression zone close to settlements. Salvage logging requires careful management to maintain the significant habitat values of post-fire forests (see below).

Fire suppression has certain risks, notably the gradual accumulation of extensive mature to old growth forest stands at extents outside the range of natural variability. These are more prone to stand replacing insect infestations than landscapes with an integrated mix of forest age classes.

We recommend that the Plan:
(i) provides a synopsis of the range of natural variability of forest age classes in the major geographic zones of differing disturbance regime, and discusses disturbance processes and how to emulate them.
(ii) explicitly addresses the question of fire suppression, and whether or not the current zoning (suppression and wilderness) is sufficient, with appropriate boundaries.
(iii) promotes the use of intensive forest harvesting (with clearcutting) within the Fire Suppression zone, and salvage logging of recent burns (where access is reasonable, best management practices are in place, and suitable planning is achieved) in the Wilderness zone, in the portions of the planning region where wildfire has historically been a prominent force.

ZONING

The terms of reference for this process state that watershed boundaries will be used to delimit planning units. This is a reasonable approach, especially in terms of water quantity and quality management. However, it does not lend itself readily to dealing with the dominant role of the fire suppression zoning regime, because that regime will divide many of the planning units in two or more sub-units with different basic approaches to forest management. Because watershed boundaries will define the land management units in this planning process, the resultant plan may be more detailed and intricate than could have been achieved otherwise.

The forest management zone will most prominently overlap and potentially conflict with the following land uses: protected areas; agriculture; residential development. In the absence of a strategic land use plan, the forest resources management planning process needs at least to address each of these conflicting uses so as to avoid precluding future options.

We recommend that the Plan addresses recommendations for new protected areas (e.g., habitat protection areas), land capability for agriculture, and high capability residential developments especially within the Whitehorse planning unit, and leaves options open for these land uses.

HARVEST ZONES and PRESCRIPTIONS

The Plan can make sensible steps to integrating wildlife habitat values with other values by specific attention to forest seral stages (often approximated by age class) and site productivity.

After disturbance (especially post-fire), stands less than 10 years old offer high value habitats for a significant suite of wildlife, yet also present a useful timber harvesting opportunity (salvage logging). Harvesting will often require novel access, and may often be too remote to be worthwhile. When within reasonable access, taking benefit of some of the salvageable wood will require relatively rapid Timber Harvest Planning, road building and re-allocation of bureaucratic and fiscal attention.

The Plan needs a systematic and strategic approach to salvage logging, including Best Management Practices and/or standards and guidelines established well in advance of such harvesting. Post-fire stands offer high habitat values for many wildlife species. For example, standing dead (burnt) trees provide habitat for a suite of insects and therefore foraging habitat for insect-eating birds, and often nesting habitat. The standards and guidelines for managing salvage logging need to address issues of deadwood retention, coupled with harvest timing, scale and intensity, so that wildlife habitat supply (and canopy tree regeneration) is maintained through this structural stage . Some salvage logging, especially to provide cord wood, could significantly reduce the harvest pressure for this resource from older forest stands where dead-tree retention is also of high ecological value for wildlife habitat supply (marten, flying squirrel, and cavity nesters such as woodpeckers, chickadees, nuthatches, small owls, bufflehead and goldeneye). The Southern Lakes region is the best region in which to consider salvage logging because the wood sources are relatively close to market.

We recommend that the Plan:
(i) addresses the need for a strategic approach, with standards and guidelines, to salvage logging in the region (and the Territory), by including such planning and management guidelines within the Plan;
(ii) addresses the value and opportunity for salvage logging of reasonably accessible recent burns.

Early seral forests (10-50 years) are relatively rare in the region. Most of these shown on the forest inventory map we believe are now mid-seral in age, having resulted from burns in 1958. Early seral stands are of high value to numerous wildlife species, notably moose and snowshoe hares along with their attendant predator communities. It appears that fire suppression has reduced recruitment of these stands in recent history. This could be changed with extensive clearcut harvesting in the fire suppression zone.

Mid-seral forest stands (50-90 years) are generally the least valuable to wildlife in this region. Forests support little understorey vegetation as they go through self-thinning. Successional progression in some of these stands in this region appears to have slowed with a delay in self-thinning, perhaps as a result of poor growing conditions (unproductive soils) and high natural regeneration rates (current stand densities) following fire. Significant areas in the Ibex valley, and in the Snafu-Tarfu area, could potentially benefit from management intervention (prescribed burning; selection harvesting) to speed up succession to later seral conditions (stand thinning). Although hypothetical at this stage, management interventions might be tailored to enhance recruitment of caribou winter range in these areas (both of which were caribou winter range prior to the 1950s burns).

We recommend that the Plan address the potential to combine caribou range recruitment with timber harvest (selection cutting for biofuel) in an experimental management approach.

Late seral forests (>90 years) are quite common in the region, probably reflecting a long return interval for wildfire in parts of the region (southern and easternmost units) coupled with fire suppression. This has benefitted caribou, through recruitment of extensive winter range for the Carcross herd. It has benefitted cord wood harvest, because of extensive recruitment of standing dead trees. Selective

removal of live and dead trees to reduce stand density appears to benefit caribou winter range by providing improved growing conditions for ground lichens. However it reduces habitat supply for numerous other wildlife species (marten, flying squirrels, cavity nesting birds, woodpeckers).

We recommend that the Plan:
(i) provides zoning recommendations for overlap of cordwood harvesting and caribou winter range in some late seral forests.
(ii) provides zoning recommendations for exclusion of cord wood harvesting from some late seral forests.

Stand age is not always a good proxy for the value of the stand for wildlife habitat or timber harvest. The region has lots of poor growing conditions for forests. Site productivity (a product of soil and moisture regimes) is a better indicator of tree size by age, and also of the biodiversity values of a stand. An inventory of site productivity is a necessary tool for good forest management, and specifically for addressing the frequent overlap of the highest wildlife habitat values with the highest timber harvest values and the highest agricultural land capability. The highly productive forest land base needs to be allocated to various of these values in a sustainable fashion (zoning, site-based management prescriptions, etc.).

We recommend that the Plan:
(i) employs an inventory of site productivity in its assessment of forest zoning with planning units and its direction to Timber Harvest Plans, or prescribes the need to develop such an inventory;
(ii) directs the need to assess the sufficiency of the current riparian management guidelines for wildlife habitat conservation.

ACCESS
Harvesting of forest resources requires access, often by road but also by trails and on foot. Access affects wildlife by direct mortality (road-kill), spreading fish and game harvest over larger regions, displacing animals from some habitats (noise and other disturbance). Roads will have to be built to reach some harvest areas, but need to be managed to reduce impacts on wildlife. The Plan needs to address this issue. Specifically it needs to provide direction on: (i) who can use the roads; (ii) how and where to limit traffic; (iii) how to design road layout to avoid key habitats (site-specific, high value habitats such as raptor nests and mineral licks), wetlands and lake shores; (iii) road life-span with de-commissioning.

We recommend that the Plan mandates that:
(i) forest access roads are industrial roads, without public access, and with appropriate access control structures (e.g., gated bridges at large rivers);
(ii) road design and layout use up-to-date inventories of key wildlife habitats and travel routes;
(iii) roads avoid easy access to wilderness lakes (> 1 km buffer);
(iv) roads have a life-cycle plan that is linked to the timber harvest planning for the landscape being accessed, and includes a de-commissioning strategy.

CONNECTIVITY

Wildlife use habitats at different scales. Individuals of some species (notably caribou, moose, grizzly bear) move across and among numerous of the planning units currently mapped. Connectivity (the ability of individuals to move between suitable habitat patches seasonally or through a successional cycle) is implicit in boreal wildlife's adaptation to a habitat mosaic created by wildfire. Such landscape-scale connectivity may best be addressed by a Regional Land Use Plan. However, the forest management plan also needs to address the topic, and can provide solid direction for maintenance of existing (and sometimes threatened) forest connectivity, especially in valley bottoms (e.g., connectivity within the Carcross caribou winter range; connectivity across the Takhini valley).

Animals often use specific travel routes, repeatedly over time. These are high value habitats themselves and need to be viewed as key habitats. They are rarely mapped in much detail, but deserve more attention both at the regional scale (caribou migration routes between seasonal ranges) and within landscapes (otter overland travel routes; game trails in valley floors; thinhorn sheep and mountain goat trails between escape terrain and mineral lick; connectivity of structural stages for flying squirrels).

We recommend that the Plan:

(i) includes assessment of landscape scale travel routes and opportunitiesfor big game species with recommendations for retention of forested land base in valley floors;

(ii) directs the need to inventory and map major travel routes / trails so that these can be addressed in timber harvest planning;

(iii) promotes the development of management guidelines (best management practices) for conservation of site-specific travel corridors, wetland connectivity, and dispersal ability of species dependent on certain stand structural conditions.

FOCAL SPECIES

The Plan's terms of Reference (section 9.0) specifically direct attention to caribou, moose, freshwater fish and salmon. These species are of particular importance to the Parties to the Plan. There are many ways in which the Plan can address conservation of these species within the context of forest management, but we do not explore those details here.

We suggest that other species also need to be addressed because of the potential impacts of extraction of forest resources on their habitat requirements. By management context, these include:

Regional Connectivity	-	Grizzly Bear
Connectivity within Planning Units	-	Major game trails
	-	Thinhorn Sheep
	-	Mountain Goat
	-	Northern Flying Squirrel
Connectivity among water bodies	-	River Otter
	-	Wood frog
Riparian Management	-	Nesting songbirds
	-	Fisher
Localized, repeatedly-used Habitats	-	Northern Goshawk

	- Great-horned Owl
	- Bald Eagle
	- Osprey
	- Mineral licks
Spatial scale of Harvesting	- Snowshoe hare
	- Some songbirds
Mature forest structure	- Woodpeckers
	- Marten
Salvage logging	- Woodpeckers
	- Hawk Owl

We do not suggest that the Plan needs to address each of these species in detail. Some demand attention as indicated in earlier sections. The Plan does need to address how these species, as indicators of particular issues or risks, can and should be addressed by such means as: Forest Management Standards and Guidelines; Timber Harvest Plans; habitat inventories; monitoring in the context of adaptive management.

FOREST MANAGEMENT as an EXPERIMENT

With a changing climate and shifts in disturbance regimes, forest management is becoming more of an operational experiment, which requires an adaptive management approach. In order to learn from our harvesting, we need control areas (also known as ecological benchmarks). These would have relatively little human activity but be sufficiently large to accommodate natural disturbances and also have a reasonable representation of wildlife habitats. Roadless areas are good candidates for ecological benchmarks, and the maintenance of roadless areas is an important consideration in land use planning generally. This strategic planning process can identify such benchmark areas (analogous in some ways to protected areas, but not necessarily having such an official designation), and the need for monitoring strategies that would take advantage of their "control" function in relation to the operational "treatments" prescribed elsewhere. We have analysed the availability of benchmark areas in the region, and can provide that to the process.

We recommend that the Plan identifies the need for an adaptive management approach to forestry, including a set of control areas or ecological benchmarks, and a monitoring strategy and program designed to test certain hypotheses about the outcomes of forest management.