Version 1 April 2005

BACKGROUND INFORMATION FOR IMPLEMENTING SPECIES AT RISK OBJECTIVES UNDER THE CARIBOO-CHILCOTIN LAND-USE PLAN (CCLUP), IN THE 100 MILE HOUSE FOREST DISTRICT.

This document is intended to provide background information of the amount, distribution and attributes of wildlife habitat required for the survival of species at risk in the 100 Mile House Forest District. Its purpose is to clarify the intent of the CCLUP and to provide information for consideration by delegated decision makers and by those persons required to prepare results and strategies consistent with Higher Level Plan objectives for species at risk.

The Cariboo-Chilcotin Land Use Plan (CCLUP) higher-level plan declaration provides legal weight to the objectives, targets, and strategies of the land use plan for the purposes of forestry operational plans. This land use plan direction is continued for the purposes of the *Forest and Range Practices Act*. The objectives set by government for species at risk in the CCLUP area are found in the following documents:

Cariboo-Chilcotin Land-Use Plan 90-Day Implementation Process Final Report, February 1995;

Addendum to the Cariboo-Chilcotin Land –Use Plan 90-Day Implementation Process Final Report, April 20, 1995; and the

Memorandum Outlining Government's Intent Regarding the Implementation of the Cariboo-Chilcotin Land-Use Plan, January 23, 1996.

This Background Information document is provided to clarify objectives set by government for species at risk as a service to planners and decision makers when preparing and approving forest stewardship plans for forestry operations in the CCLUP area. Table 1 summarizes the amount of area included in the Background Information document. Indicators of amount, distribution and attributes included are based on existing data, current knowledge of species distribution, inventory efforts, and species biology, including territory size and intra-specific competition. In many cases, comprehensive inventories have not been completed. Where inventory work or suitability mapping generates a different number of known occurrences and suitable habitat, the information package may be amended to reflect a greater number of anticipated wildlife habitat areas. Any amendment will be consistent with the strategies, objectives, and targets in the Cariboo-Chilcotin Land Use Plan (CCLUP).

Species accounts for each of the species mentioned can be obtained from the Identified Wildlife Management Strategy website:
http://wlapwww.gov.bc.ca/wld/identified/iwms2004_index.htm

Table 1. Summary of amounts included in the Information package and approved WHAs in the 100 Mile House Forest District.

Species	Total Area (ha) of Known Sites	Total Long-Term Projection of New Additional Areas (ha)
Badger	1,200.0	3100.0
Great Blue Heron	80.0	400.0
Lewis's Woodpecker	0	140 .0
Grizzly Bear	0	850 .0
Flammulated Owl	0	360.0
"Great Basin" Gopher Snake	0	2500.0
Great Basin Spadefoot	0	50.0
Spotted Bat	0	40.0
Fringed Myotis	0	60.0
Subtotal	**1280.0**	**7,500.0**
Wildlife Habitat Areas		
Mountain Caribou (5-115, 5-116, 5-117)		
Mountain Caribou - Modified harvest area	2,094.00	
Mountain Caribou - No harvest area	9,232.00	
Subtotal	**11,326.0**	
Total	**12,606.00**	**7,500.0**

All results and strategies for species at risk must be consistent with the strategies, objectives, and targets in the Cariboo-Chilcotin Land Use Plan (CCLUP).

Total Area (ha) of Known Sites: The total amount of hectares for known sites where WHAs can be established. The area is calculated by multiplying the number of known sites for each species by an average WHA size. The average WHA size (in hectares) for each species at risk is taken from the IWMS accounts. The amount of area addressed in results and strategies for each site will be guided by site conditions and habitat suitability for the species at risk. *Please refer to the IWMS document for species accounts and to confirm the measures for each species. Measures and size vary for each species.*
Total Long-Term Projection of New Additional Areas (ha): The total amount of hectares covered by new future additional WHAs in the FD for each species at risk. Where inventory work identifies new occurrences and suitable habitat for a species at risk, WHAs will be considered. *Please refer to the IWMS document for species accounts and to confirm the measures for each species. Measures and size vary for each species.*

Consistent with the CCLUP, the following Information package includes indicators of the amount, distribution and attributes of wildlife habitat required for the survival of the species at risk outlined in Schedule 1.
Approved Wildlife Habitat Areas are not included in the indicators of amount, distribution and attributes for each of the species outlined. As per section 7(3) of the *Forest Planning and Practices Regulation*, forest tenure holders will be exempt from the obligation to specify a result or strategy in relation to the objective set out in section 7(1) of the *Forest Planning and Practices Regulation*, for approved Wildlife Habitat Areas.

This Information package applies to the 100 Mile House Forest District.

Schedule 1

1) Badger (*Taxidea taxus jeffersonii*)

Amount:

1. 1,200 ha. This amount is based on the anticipated need for 12 future wildlife habitat areas for Badger. These twelve wildlife habitat areas are currently in the process of being identified. Information is available from the Ministry of Water, Land and Air Protection.

2. A total of 3100 ha, intended to address 31 future WHAs, has been identified as a long-term projection for this species.

Distribution:

1. The distribution of the amount of habitat referenced above should be consistent with areas of suitable habitat of the size, spatial distribution and connectivity identified in the species account for Badger in the *Accounts and Measures for Managing Identified Wildlife* (Identified Wildlife Management Strategy Version 2004).

2. The areas described above are located within the biogeoclimatic units and preferred elevations identified in the species account for Badger in the *Accounts and Measures for Managing Identified Wildlife* in the Identified Wildlife Management Strategy Version 2004 considering the strategies and objectives in the Cariboo-Chilcotin Land Use Plan (CCLUP).

Attributes:

1. The species account for Badger in the *Accounts and Measures for Managing Identified Wildlife* (Identified Wildlife Management Strategy Version 2004) identifies suitable breeding and foraging habitat and the goals for the management of wildlife habitat areas.

Attribute	Characteristics
Size	Generally 2–100 ha depending on site characteristics. The area should include known burrows and/or prey concentrations and areas of suitable habitat. Use soil or geologic boundaries wherever possible.
Burrowing and Foraging Habitat Features	Most badger activity is at low elevations in dry regions within native grasslands, open forest Douglas-fir or ponderosa pine as well as disturbed sites such as agricultural fields. They have also been known to use

	cutblocks and early-seral forests. Burrow and hunting sites are typically dominated by grass, forbs, or low shrubs, either in non-forest, open forest or very young forest. The most common soil types used are moderately coarse-textured Brunisols with low to moderate (<35%) coarse fragment content, originating from glaciofluvial and glaciolacustrine parent material. Badgers may use disturbed soils (i.e., road fill) or small areas where morainal deposits dominate. They maintain and use several burrows over a large home range; burrows are readily reused by both badgers and other species (i.e., Burrowing Owl).
Restocking densities	< 75 stems / ha, prefereed 20 stems / ha
Structural Stage	For forested habitat types in which older structural stages are characterized by closed-canopy forest, stages 0 and 1 are important for prey abundance. In open-canopied and non-forested habitat types, at mid- to late-seral, highly structured grasslands are important habitat features for badger prey.
Elevation	Minimum elevations are 300–800 m, depending on the region; maximum elevation is about 2800 m. Badger occurrence is usually greatest near valley bottoms but at least some populations make regular use of all elevations, including the alpine.

2) Great Blue Heron (*Ardea herodias*)

Amount:

1. 80 ha. This amount is based on the anticipated need for 1 future wildlife habitat area for Great Blue Heron. Information on site locations is available from the Ministry of Water, Land and Air Protection.

2. A total of 400 ha, intended to address 5 future WHAs, has been identified as a long-term projection for this species.

Distribution:

1. The distribution of the amount of habitat referenced above should be consistent with areas of suitable habitat of the size, spatial distribution and connectivity identified in the species account for Great Blue Heron in the *Accounts and Measures for Managing Identified Wildlife* (Identified Wildlife Management Strategy Version 2004).

2. The areas described above are located within the biogeoclimatic units and preferred elevations identified in the species account for Great Blue Heron in the *Accounts and Measures for Managing Identified Wildlife* in the Identified Wildlife Management Strategy Version 2004.

Attributes:

1. The species account for Great Blue Heron in the *Accounts and Measures for Managing Identified Wildlife* (Identified Wildlife Management Strategy Version 2004) identifies suitable breeding and foraging habitat and the goals for the management of wildlife habitat areas.

Attribute	Characteristics
Size	Typically 80 ha to accommodate nesting areas/colonies, but may also target foraging areas. The core area should be approximately 12 ha and should include known nesting trees, foraging areas and flight paths. The boundary

	of the core area should be a 200 m radius around the aforementioned features. A management area should be captured to include a 300 m radius surrounding the core area.
Tree Features	Nests occur in fragmented forests, contiguous forest and isolated trees.
Tree Species	Black cottonwood, Douglas fir, western white pine, hybrid white spruce, ponderosa pine, western red cedar, western hemlock.
Structural Stage	5 (young forest), 6 (mature forest), 7(old forest).
Elevation	Sea level to 1100 m.

3) Lewis's Woodpecker (*Melanerpes lewis*)

Amount:

An indicator of amount for Lewis's Woodpecker has not been included in this Information package. Comprehensive inventory information is incomplete. Where inventory work generates known occurrences and identifies suitable habitat, the indicator of amount in the Notice may be amended to include a number of future wildlife habitat areas for this species.

A total of 140 ha, intended to address 5 future WHAs, has been identified as a long-term projection for this species.

Attributes:

Attribute	Characteristics
Size	5-50 ha but depends on the area of suitable habitat.
Nesting Habitat	Old growth ponderosa pine or Douglas fir, typically <25% canopy closure with presence of large diameter dead or live snags (preferably >=45 cm dbh and a minimum of 30cm dbh). In mature deciduous stands (i.e., paper birch), canopy closure varies (5-80%) and includes large trees (preferably >=45 cm dbh and a minimum of 30 cm dbh). Nesting trees often have evidence of heartrot infection or broken tops or limbs.
Tree Species	Ponderosa pine, black cottonwood and Douglas fir.
Foraging Habitat Features	Includes open forests and valley bottoms, deciduous groves near lakes and streams, burns, logged areas, agricultural habitats such as orchards and farms, rural gardens, and urban areas. Broken-topped or large-limbed living or dead trees are used as hawking perches.
Tree Size	Preferably with greater than or equal to 45 cm dbh and a minimum of 30 cm dbh
Wildlife Tree Class	2–4 for ponderosa pine; 4–7 for Douglas-fir (a mix would be ideal, but preference would be for lower end of decay range to maximize current suitability and longevity).
Structural Stage	2: herb (foraging for beetles, ants and other insects), 3a: low shrub (shrub stage for foraging when insects are abundant), 3b: high shrub (possibly used for foraging when insects are abundant), 5: immature forest (particularly in black cottonwood stands), 6: mature forest (black cottonwood, ponderosa pine and oak stands), 7: old-growth forest (black cottonwood, ponderosa pine and oak stands).
Elevation	Nesting in elevation between 250-1160 m.

4) Grizzly Bear (*Ursus arctos*)

Amount:

An indicator of amount for Grizzly Bear has not been included in this Information package. Comprehensive inventory information is incomplete. Where inventory work generates known occurrences and identifies suitable habitat, the indicator of amount may be amended to include a number of future wildlife habitat areas for this species.

A total of 850 ha, intended to address 5 future WHAs, has been identified as a long-term projection for this species.

Attributes:

Attribute	Characteristics
Size	1-500 ha, depending on the area of use, extent of seasonal habitat and buffer size required.
Critical patch habitats	Critical patch habitats include herb dominated avalanche tracks with adjacent forest, non-forested fens, herbaceous riparian adjacent forest, non-forested fens, herbaceous riparian meadow/wetland complexes and seepage sites, skunk cabbage swamps, sub alpine parkland meadows, whitebark pine stands, salmon fishing areas and old burns or other successional areas dominated by Vaccinium (blueberry) species. Non-forested critical habitats include a core area and buffer of forested cover. Forested critical habitats are not buffered.
Denning Habitat Features	Hibernating habitats tend to be high elevation areas that are sloped with dry, stable soil conditions that remain frozen throughout the winter. Dens are typically located on steep north-facing slopes, areas where vegetation will stabilize the den roof and where snow will accumulate for insulation. Dens are rarely re-used but Grizzly bears will often return to the same vicinity to dig new dens.
Foraging Habitat Features	Habitat selection is strongly influenced by meeting nutritional requirements, access to mates, thermal cover (i.e., dens), social interactions and the presence and activities of people. Habitat requirement vary greatly as some bears are more transient while others are more resident. Both residents and transients select patches or complexes of habitats within landscapes.
Structural Stage	Generally, foraging is more abundant in non-forested sites, sites with partial forest or sites with many tree gaps in older forest. Closed forest sites near quality habitat may be used for security and day bedding areas. Many or all structural stages can be used seasonally or for specific needs and as such, forage type is not necessarily tied to one particular structural stage.
Elevation	All elevations from sea level estuaries to high alpine meadows and talus slopes.

5) Flammulated Owl (*Otus flammeolus*)

Amount:

An indicator of amount for Flammulated Owl has not been included in this Information package. Comprehensive inventory information is incomplete. Where inventory work generates known occurrences and identifies suitable habitat, the indicator of amount may be amended to include a number of future wildlife habitat areas for this species.

A total of 360 ha, intended to address 20 future WHAs, has been identified as a long-term projection for this species.

Attributes:

Attribute	Characteristics
Size	Between 10 and 30 ha, based on estimated home range size using habitat suitability information. Should include a core area of 7-12 ha that includes key foraging, the nest site and security habitats and ~100 m management zone. Consider a WTP >=4 ha where salvage does not occur and where as many suitable wildlife trees as possible are maintained or recruited over the long term (>80 yrs).
Tree Features	Visible woodpecker or natural cavities; understory brush or thickets, snags with cavities.
Tree Species	Most commonly, Douglas fir, Ponderosa pine; less commonly, trembling aspen or western larch.
Nesting Habitat Features	Includes multi-age class stands with multiple canopy layers, including a veteran tree component for nesting or roosting. Large diameter Douglas fir and ponderosa pine for nest trees may be critical to sustain local populations. Nest in Pileated Woodpecker and Northern Flicker cavities and it is therefore important to consider nesting requirement of these species as well. Nests are often located within and/or near foraging habitat.
Foraging Habitat Features	Often forages within 300 m of nest during breeding season. Habitat is characterized by small forest openings (<1 ha) adjacent to Douglas-fir thickets and/or large veteran Douglas-firs or ponderosa pines with heavy branching for security. Understorey structure may be important in forest openings for foraging habitat.
Tree Size	64-77 cm. In the absence of trees with the preferred dbh, trees >35 cm or largest available should be retained for recruitment.
Wildlife Tree Class	1, 3-7
Structural Stage	6 (mature forest), 7 (old forest).
Elevation	400-1375 m.

Those persons considering results and strategies for Flammulated Owl should note that future wildlife habitat areas may overlap winter range areas identified in the *Management Strategy for Mule Deer Winter Ranges in the Cariboo-Chilcotin* of the CCLUP.

6) "Great Basin" Gopher Snake (*Pituophis catenifer deserticola*)

Amount:

An indicator of amount for "Great Basin" Gopher Snake has not been included in this Information package. Comprehensive inventory information is incomplete. Where inventory work generates known occurrences and identifies suitable habitat, the indicator of amount may be amended to include a number of future wildlife habitat areas for this species.

A total of 2500 ha, intended to address 10 future WHAs, has been identified as a long-term projection for this species.

Attributes:

Attribute	Characteristics
Size	Approximately 200–300 ha but will depend on site specific factors such as area of suitable habitat and nearness to foraging areas.
Foraging Habitat Characteristics	Sites with low disturbance and absence of roads (populations are negatively impacted by mortality, particularly road mortality). Presence of retreat sites including structural elements such as rock outcrops, talus slopes, friable soils, coarse woody debris, burrows in areas with friable soils, concentrations of boulders, or other unconsolidated materials and vegetative cover. Areas with moderate to dense cover provided concealment cover to snakes and maintain foraging opportunities. Properly functioning riparian areas also may provide enhanced foraging opportunities. Grassland, parkland forest, wetland, and riparian areas provide foraging habitat for snakes. Foraging habitats must also provide suitable cover, in the form of vegetation and coarse woody debris, to provide protection from predation. Rock outcroppings and wildlife trees (class 8 and 9[dead fallen]) were observed to be important sources of cover for the snakes.
Denning	Rock outcrops or talus habitat. Located on south facing slopes in Ponderosa Pine or Douglas fir, or Bunchgrass BEC zones.
Egg-laying Site Characteristics	South to southeast facing slopes, but are more likely to be found in abandoned rodent burrows than in talus or rock outcrops. Well drained sites.
Structural stage	1, 2 and 3.
Elevation	250-1100 m.

7) Great Basin Spadefoot (*Spea intermontana*)

Amount:

An indicator of amount for Great Basin Spadefoot has not been included in this Information package. Comprehensive inventory information is incomplete. Where inventory work generates known occurrences and identifies suitable habitat, the indicator of amount may be amended to include a number of future wildlife habitat areas for this species.

A total of 50 ha, intended to address 5 future WHAs, has been identified as a long-term projection for this species.

Attributes:

Attribute	Characteristics
Size	Approximately 10 ha but will depend on site-specific factors such as size of water feature and extent of surrounding suitable habitat. The core area should include the aquatic breeding site(s) and suitable uplands within ~250 m to protect most of the aestivation habitat.
Terrestrial Habitat	Most closely associated with herb (2) and shrub (3) structural stages for foraging, they will occur in open forest (4–7). Loose soil texture, deep siols, and an open habitat structure are more critical factors in determining foraging suitability. Terrestrial habitats include semi-arid habitats such as bunchgrass grasslands, sagebrush steppe, and open ponderosa pine forests.
Aquatic Habitat	Breeds in permanent or temporary aquatic habitats, generally in areas of shallow water (<1m). The absence of predatory fish dramatically increases the survival of eggs and tadpoles. Breeding habitat is used between April and July.
Elevation	275–1800 m but generally found breeding below 600 m.

8) Spotted Bat (*Euderma maculatum*)

Amount:

An indicator of amount for Spotted Bat has not been included in this Information package. Comprehensive inventory information is incomplete. Where inventory work generates known occurrences and identifies suitable habitat, the indicator of amount may be amended to include a number of future wildlife habitat areas for this species.

A total of 40 ha, intended to address 5 future WHAs, has been identified as a long-term projection for this species.

Attributes:

Attribute	Characteristics
Size	5-10 ha; the area should related to the size of the roost feature (i.e., cliff face) and may in some cases be larger than 10 ha. The core of the area will consist of the roost cliff and talus base; the management zone should be 100 m around the roost cliff.
Roosting Habitat Features	Steep, high cliffs within a few kilometres of suitable feeding areas (riparian areas, marshes, fields, grasslands, and open forest) and close to a source of water are important as day roosts. These sites are typically located in crevices in steep, tall cliffs.
Foraging Habitat Features	Grassland, parkland, forest, wetland, and riparian areas. Foraging corridors, such as lake edges, may also be used.
Structural Stage	There are no structural stage preferences known for this species, as they roost in large cliffs and often forage well above the canopy.
Elevation	Variable. Typically between 300 to 900 m, although most occurrences are below 500 m. In other parts of its range, it has been found from sea level to 3300 m.

9) Fringed Myotis (*Myotis thysanodes*)

Amount:

An indicator of amount for Fringed Myotis has not been included in this Information package. Comprehensive inventory information is incomplete. Where inventory work generates known occurrences and identifies suitable habitat, the indicator of amount may be amended to include a number of future wildlife habitat areas for this species.

A total of 60 ha, intended to address 5 future WHAs, has been identified as a long-term projection for this species.

Attributes:

Attribute	Characteristics
Size	Typically 12 ha but depends on site-specific factors, including the proximity to alternate roosts. Area should include a core area of 100m with a management zone of 100m. The design should take into consideration bat movements during the breeding season and that bats may require several maternity trees per year. An area for hibernacula should be similar in design however it will be an isolated feature and will not require connectivity.
Roosting Habitat Features	Day, night and maternity roosts are located in caves, rock crevices, mine tunnels and buildings. Fringed myotis roosts in colonies and therefore, suitable roosts must accommodate several individuals. Roosting in trees has

	not been documented in BC.
Foraging Habitat Features	Use a variety of habitats including mid-elevation grasslands, deserts and woodlands. Typically in locations within 1 hour's flight of forested habitat. This species may also forage in orchards where roosts are provided and in old growth and mature stands.
Tree Species	The species is most closely associated with arid grassland and Ponderosa Pine-Douglas fir forest.
Tree Size	Large ponderosa pine/Douglas fir trees 30-50cm dbh and all large ponderosa pine/Douglas fir trees >50m dbh. Retain all large wildlife trees >31cm dbh (class 3-8).
Wildlife Tree Class	4
Elevation	300-854 m.