
Appendix 5.4.9B Red-tailed Hawk Species Account

Project Name: *Blackwater*
Scientific Name: *Buteo jamaicensis*
Species Code: B_RTHA
Status: Yellow-listed by British Columbia (BC) Conservation Data Centre; listed as Not at Risk by COSEWIC.

1.0 DISTRIBUTION

Provincial Range

Red-tailed hawks are found throughout BC (Bird Studies Canada, 2012).

Elevational Range

Sea level to 2,230 metres (m) elevation (Campbell et al., 1990).

Provincial Context

There are no population estimates available for BC. Nesting densities in the Fraser Delta (0.28 pair per square kilometre (km²)) are among the highest in North America; only California (0.77 pair/km²) and Colorado (0.5 pair/km²) have reported higher densities (Preston and Beane, 2009). Breeding densities in the province are lowest in the northern boreal forest and coastal rainforest (Campbell et al., 1990). Highest densities occur in areas of potential habitat, with high densities of prey, few competing raptors, and abundant hunting perches.

Project Area:

Ecoprovince:	Central Interior
Ecoregions:	Fraser Plateau
Ecosections:	Nazko Upland
Biogeoclimatic Zones:	Sub-Boreal Spruce Sub-Boreal Pine – Spruce Englemann Spruce – Subalpine Fir Boreal Altai Fescue Alpine

Project Map Scale: Project specific

2.0 ECOLOGY AND KEY HABITAT REQUIREMENTS

Red-tailed hawks are year-round residents of coastal and southern BC and are summer breeding residents throughout the rest of the province (Bird Studies Canada, 2012, Campbell et al., 1990). This species is one of the most abundant raptors in BC and is a habitat generalist. Its habitat preference includes any type of open area: agriculture, meadows, parkland, open forest, grassland, clearcuts, burns, and transportation corridors (Campbell et al., 1990). Preferred habitat is largely driven by open areas with an abundance of perches suitable for hunting and an abundance of prey, principally small rodents (Preston and Beane, 2009). Birds, snakes, amphibians, and occasionally carrion are also eaten (Preston and Beane, 2009). This

species has been found nesting between sea level and 2,250 m; however, the highest nesting density within the province is located in the Fraser Delta (Campbell et al., 1990). Areas of contiguous, dense forest does not provide much available hunting habitat, while areas affected by forest fires and logging are quickly colonized and this species can become quite common in those landscapes (Preston and Beane, 2009).

There is little information available on territory size that is defended, but one study reported an average of 2.3 km² in Oregon and 1.24 km² in Puerto Rico (Preston and Beane, 2009). Both sexes may defend the territory, with territory defence usually subsiding after the breeding season (Campbell et al., 1990). Nest sites are typically in the canopy of a tree, but red-tailed hawks may also nest in snags, cliffs, and tall artificial structures. Nests are usually placed within a crotch or on a branch adjacent to the trunk (Preston and Beane, 2009).

Red-tailed hawks in the Project area are migratory and likely arrive in April and depart in October; however, a few birds may be present into winter (Campbell et al, 1990). During migration, this species prefers mountain ranges, generally avoids large waterbodies, and forages in open areas.

3.0 HABITAT USE: LIFE REQUISITES

Living (LI)

The Living life requisites for red-tailed hawks are satisfied by the presence of suitable reproductive, feeding, and security/thermal habitat, which are described in detail below.

Reproducing (eggs)

Reproductive habitat provides red-tailed hawks the ability to build a nest, incubate eggs, and raise young in safety from predators, precipitation, wind, and hot temperatures. Nests are typically placed in or near the crown, frequently in a crotch or adjacent to the trunk (Campbell et al., 1990). Black cottonwood, Douglas-fir, and ponderosa pine are the tree species most frequently used for nest sites in BC, and nest trees are typically above the height of the surrounding canopy (Campbell et al., 1990). Cliff faces, snags, and buildings are also occasionally used as nesting sites (Preston and Beane, 2009). Optimal habitat is provided by late successional forest (structural stages 6–7) with canopy closure <40%; non-forested areas (structural stage 1–3a) with scattered mature trees adjacent to late successional forest (structural stages 6–7); or edges (<100 m) of late successional forest with canopy closure >40% and adjacent to no forest (structural stages 1–3a).

Feeding

Feeding habitat provides red-tailed hawks the ability to forage for rodents, birds, and reptiles by utilizing elevated perches in open areas to scan and search for prey (Preston and Beane, 2009). Optimal habitat is provided by late successional forest (structural stages 6–7) with canopy closure <40%; non-forested areas (structural stage 1–3a) with scattered mature trees adjacent to late successional forest (structural stages 6–7); or edges (<100 m) of late successional coniferous forest with canopy closure >40% and adjacent to no forest (structural stages 1–3a).

Security/Thermal

Security and thermal habitat, typically mature trees with dense foliage either found in open areas or along forest edges, provides red-tailed hawks with protection from predators, harassment, precipitation, and wind. Optimal habitat is provided by late successional forest (structural stages 6–7) with canopy closure <40%; non-forested areas (structural stage 1–3a) with scattered mature trees adjacent to late successional coniferous forest (structural stages 6–7); or edges (<100 m) of late successional coniferous forest with canopy closure >40% and adjacent to no forest (structural stages 1–3a).

4.0 TERRITORIALITY

Territories are typically defended during the breeding season but break down during the non-breeding season and are not typically defended. Defended territory size is not well known; however, sizes between 1.45 km² and 2.3 km² have been reported (Preston and Beane, 2009). Territory boundaries frequently remain constant between territory holders and typically follow physical features (e.g., rivers, roads, forest). Air space above the territory is not typically defended against other red-tailed hawks flying through.

5.0 SEASON OF USE

Red-tailed hawks are likely present in the Project area only during the growing season (spring, summer, and fall). The growing season is rated based on the habitat requirements identified in this species account and the location of the Project (**Table 1**).

Table 1: Monthly Life Requisites for Red-tailed Hawk

Month	Season	Life Requisites
January	Winter	-
February	Winter	-
March	Winter	-
April	Early Spring	Reproductive/Feeding/Security and Thermal
May	Late Spring	Reproductive/Feeding/Security and Thermal
June	Summer	Reproductive/Feeding/Security and Thermal
July	Summer	Reproductive/Feeding/Security and Thermal
August	Summer	Reproductive/Feeding/Security and Thermal
September	Fall	Reproductive/Feeding/Security and Thermal
October	Fall	-
November	Winter	-
December	Winter	-

6.0 HABITAT USE AND ECOSYSTEM ATTRIBUTES

Table 2 outlines how each life requisite relates to specific ecosystem attributes (e.g., site series / ecosystem unit, plant species, canopy closure, age structure, slope, aspect, terrain).

Table 2: Relationship between Terrestrial Ecosystem Mapping (TEM) Attributes and the Life Requisite for Red-tailed Hawk

Life Requisite	TEM Attribute
Living (reproduction, feeding, security/thermal)	Site – site series, site disturbance, elevation, structural stage Vegetation – % cover by layer, species list by layer, structural stage modifier, stand composition modifier

7.0 RATINGS

There is an intermediate level of knowledge of the habitat requirements of red-tailed hawk in BC and therefore a four-class rating scheme is used.

Table 3: Habitat Suitability Rating Scheme used for Red-tailed Hawk

% of Provincial Best	Rating	Code
100% – 76%	High	H
75% – 26%	Moderate	M
25% – 1%	Low	L
0%	Nil	N

Habitat Suitability Ratings

Habitat suitability is defined as the ability of the habitat in its current condition to provide the life requisites of a species (Resources Information Standards Committee, 1999). When a suitability rating for red-tailed hawk is assigned to a particular habitat, that habitat is assessed for its potential to support the species for a specified season and life requisite compared with the best habitat in the province (i.e., the provincial benchmark) for the same season and life requisite. Each biogeoclimatic zone, site series, and structural stage (stages 1–7) is evaluated and assigned a suitability rating class based on its ability to provide the life requisites for red-tailed hawk for the growing season (spring, summer, and fall).

Provincial Benchmark

- Ecosection:** Fraser Lowland (FRL)
- Biogeoclimatic Zone:** Coastal Douglas-fir; Coastal Western Hemlock
- Habitats:** Open forest (<40% canopy cover), agricultural areas, burns, meadows, wetlands, and clearcuts surrounded by mature forest or with scattered mature trees.

Ratings Assumptions

1. Units with structural stages of 6 and 7 with low canopy closure (<40%) will be rated up to high.
2. Units with black cottonwood, Douglas-fir, or ponderosa pine will be rated higher than units with other tree species.
3. Structural stages of 1–3a will be rated up to high when adjacent to units with structural stages 6 and 7.
4. Edges (100 m) of units with structural stages of 6 and 7 will be rated up to high when adjacent to units with structural stages of 1–3.

Table 4: Summary of General Habitat Attributes for Red-tailed Hawks

Season	Life Requisite	Structural Stage	Requirements
Summer	Living (Reproduction, Feeding, Thermal/Security)	1–3a, 6–7	Open forest (canopy closure <40%), agricultural areas, clearings, wetlands, burns, or clearcuts adjacent to mature forest

8.0 RATINGS ADJUSTMENTS

Mapping adjustments to habitat ratings are suggested to reflect the extent of suitable habitat and to reflect knowledge about the potential of mature trees present within units of structural stage 1–3a to provide suitable nesting habitat. Units of structural stage 1–3a with mature trees will be rated up to high.

9.0 REFERENCES AND BIBLIOGRAPHY

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