6.4 WHITE-HEADED WOODPECKER SPECIES ACCOUNT

SPECIES NAME: **White-headed Woodpecker** **(*Picoides albolarvatus*)**

SPECIES CODE: **B-WHWO**

INTRODUCTION:

This document provides the background information for rating white-headed woodpecker habitat values for pre-defined ecosystem units in TFL 15, south-central British Columbia. Information on habitat requirements, life requisites, and habitat / landscape use patterns of the white-headed woodpecker have been accumulated from a variety of sources, including literature reviews, species experts, and previous inventory and mapping efforts.

STATUS:

Status in Canada (COSEWIC 1998):	**Threatened**
Status in British Columbia (CDC 1999):	
Provincial Management List:	**Red**
Global Rank:	**G4**
Provincial Rank:	**S1/S2**
Identified Wildlife (Y/N):	**Y**

DISTRIBUTION:

Continental Range:

White-headed woodpeckers are found in western North America, ranging south from extreme southern British Columbia through Washington, Oregon, and California. The easternmost distribution of white-headed woodpeckers is along the western borders of Idaho and Nevada (Godfrey 1986, Blood 1997).

According to Garrett *et al*. (1986), there are no estimates of total population size.

Provincial Range:

In Canada, white-headed woopeckers are found exclusively in south-central British Columbia, and are considered a threatened resident of the Kamloops Forest Region. White-headed woodpeckers are restricted to a dry belt of ponderosa pine in the mountains and valleys of the Okanagan, Similkameen, and Kettle valleys. As a matter of fact, 95 % of observation records in British Columbia are from the Okanagan Valley (Cannings *et al*. 1987). This area represents the northern limit of its range and provides breeding habitat for a sporadic and fluctuating population. The British Columbia and thus, Canadian, population of white-headed woopeckers are estimated at fewer than 100 birds (Blood 1997, Cannings 1995).

Range of the White-headed Woodpecker in the Project Area:

Ecoprovinces:	Southern Interior
Ecoregions:	Thompson-Okanagan Plateau, Okanagan Highland
Ecosections:	Northern Okanagan Highland, Southern Okanagan Highland, Northern Okanagan Basin, Southern Okanagan Basin
Biogeoclimatic Zones:	ESSFdc1, PPxh1, MSdm1, IDFxh1, IDFdm1 (Stevens 1995)

Elevational Range:

The elevational range of white-headed woodpecker habitat is restricted by the requirement for open, mature ponderosa pine forests. In British Columbia, this restricts the species to the benches and hills of most valleys below 600 - 700 m. Of only seven nests observed in British Columbia, all were found at elevations of 450 - 600 m (Blood 1997). However, a few unusual records indicate the presence of white-headed woodpeckers as high as 1000 - 1300 m (Gaines 1988, Cannings *et al.* 1987, Campbell *et al.* 1990). These differences in elevation vary by latitude of the individual study areas. RIC (1997) has identified the breeding elevations of the species to range from 450 – 600 m.

KEY LIFE REQUISITES:

The habitat requirements of the white-headed woodpecker are met by a fairly unique habitat type found in southcentral British Columbia. Dependent upon mature forested stands in xeric habitats, these birds have been noted in the following habitats: 85% in ponderosa pine forests, 5% in ornamental plantings, and the remainder in other forests types (Blood 1997). The high degree of habitat specialization of these birds renders them susceptible to habitat alteration. Therefore, the provision of mature ponderosa pine habitats is key to ensuring that their habitat requirements are met. Because the white-headed woodpecker utilizes ponderosa pine habitats almost exclusively, all of its life requisites can be met within this habitat type.

Living Habitat:

Living habitat for the white-headed woodpecker is afforded by mature ponderosa pine forest in mountainous terrain (*Garrett et al. 1996*). The white-headed woodpecker is a non-migratory resident species of British Columbia and, therefore, ponderosa pine forests provide year-round habitat. However, the majority of ponderosa pine forests in southern B.C. are usually mixed with more abundant Douglas-firs in the warm, dry valleys of the province. Sizable and continuous stands of ponderosa pine are scarce, which partly accounts for the naturally limited distribution of white-headed woodpecker in the province. Weber and Cannings (1976) broke down vegetation cover types observed from 115 sightings of white-headed woodpeckers in British Columbia as follows:

1. 85% Ponderosa Pine
2. 5% Ornamental Gardens
3. 4% mixed Ponderosa Pine/Douglas-Fir
4. 3% Douglas-Fir
5. 2% Engelmann Spruce/Lodgepole Pine
6. 1% Black Cottonwoods

From this information, Weber and Cannings (1976) state that preferred habitat for white-headed woodpecker is open and mature stands of ponderosa pine, a habitat which generally occurs at elevations less than 900m. *Garrett et al. (1996)* also suggest that white-headed woodpeckers reach their greatest abundance where more than a single species of pine is present, although they tend to avoid forests dominated by small or closed cone species, such as lodgepole pine. A recent study by Dixon (1995) in southcentral Oregon shows white-headed woodpeckers to select multistoried old-growth ponderosa pine forests with >53cm diameter at breast height, maximum canopy height >32 m, and shrub cover >30%. In summary, dominant requisite habitat components are abundance of mature pines (with large cones and abundant seed production), relatively open canopy (50-70%), availability of snags and stumps for nest

cavities, sparse understorey vegetation, and burned or cut forests where residual large-diameter live and dead trees are present. (Garrett *et al.* 1986, Raphael and White 1984, Raphael *et al.* 1987)

Feeding Habitat:

Feeding habitat for white-headed woodpeckers is consistent throughout all seasons. Numerous researchers have provided evidence that throughout the range of this species, seeds from cone-bearing trees, particularly ponderosa pine, are a primary source of food (Koch *et al.* 1970, Dahms and Barrett 1975, Trevis 1953). It appears that the seeds are a staple diet for the white-headed woodpecker, however there are several records of white-headed woodpeckers foraging on insects during outbreaks and during spring when the abundance of insects is highest (Ligon 1973, Blood 1997). The availability of feeding habitat is critical to the conservation of the species and has been cited as a limiting factor of white-headed woodpecker populations (Blood 1997).

Security / Thermal Habitat:

Security and thermal habitats for the white-headed woodpecker are provided by similar habitat features required for living, feeding, and reproducing. Specific structural features of higher quality security and thermal habitats are generally unknown, and have not been rated separately in this model.

Reproducing Habitat:

The white-headed woodpecker is a cavity nester. Nest site preferences tend to be snags found in open-canopied stands of mature and overmature trees (Milne and Hejl 1989, Thomas 1979). Campbell *et al.* (1990) summarized 7 known nesting sites in British Columbia and reported that 5 were in ponderosa pines with cavities ranging from 2.5 to 9m in height from the base. Snags, leaning or fallen logs, and stumps provide the primary nest sites, however 2 of the 7 observed nests occured in live ponderosa pines. A diameter at breast height (dbh) of 20-25 cm has been reported to be the minimum snag size for reproducing or roosting sites (Thomas 1979, Bull 1977, Milne and Hejl 1989). Milne and Hejl (1989) also provided a synopsis of preferred nesting habitats and identified 22 of 53 nests to occur in stands with less than 40% canopy closure, 21 were in stands with 41-69% canopy closure, and 10 were in meadows. Of these nesting sites, 87% were in mature and older stands of conifer forest and 68% were on southern aspects. Nest habitat characteristics were recorded during several studies and are presented in Table 21 below.

Table 21: Description of White-headed Woodpecker Nesting Sites

Location of Study Area	% of Tree Species	Nature of Nesting Trees	Mean dbh (cm)	Mean Nesting Tree Height (m)	Mean Height of Cavity Opening (m)	Reference
Sierra Nevada Mtns, CA	89% in pines or firs	28% in logs or leaning trees	80	8	3	Milne and Hejl (1989)
southcentral Oregon	-	100% in logs, leaning trees, or stumps	80	3	-	Dixon (1995a)
central Oregon	93% in pines and firs	-	65	14	4.4	Dixon (1995b)
Sierra Nevada	100% in pines	-	65	3.8	2.5	Raphael and White

Mtns, CA	and firs					(1984)

SEASONS OF USE:

White-headed woodpecker habitat will be rated on the basis of two seasons of use, as follows (Table 22).

Table 22: Seasons of Use Rated for White-headed Woodpecker

SEASON	CODE	DESCRIPTION (as relates to use by white-headed woodpecker)	DURATION	LIFE REQUISITE THAT MUST BE MET
All	A	With the exception of reproducing, the remainder of white-headed woodpecker life requisites are addressed by the same habitat throughout every other season	November December January February March April	Feeding / Security / Thermal
Spring	P	Nesting, hatching, and fledging period	May June	Reproducing / Security / Feeding
All	A	With the exception of reproducing, the remainder of white-headed woodpecker life requisites are addressed by the same habitat throughout every other season	July August September October	Feeding / Security / Thermal

The use of seasonal nomenclature (growing and winter) is based on that defined by RIC (1998) for the Southern Interior Ecoprovince.

HEIRARCHY OF LIFE REQUISITES:

In British Columbia, defining the limiting life requisites for white-headed woodpecker is clouded by the fact that the species is at its northernmost distribution. Several factors have contributed to the sparse population of the species in the area. Of these, the most notable appear to be the lack of continuous and homogenous ponderosa pine forests, lack of nesting snags, and extensive habitat loss and alterations resulting from human activities. Blood (1997) has indicated that recent fluctuations of white-headed woodpecker populations suggest that feeding habitat, rather than reproducing habitat, is the limiting life requisite. Typically, most cones produced by stands of ponderosa pine occur during the 60-100 year old range. Unfortunately, these trees are also commonly targeted by fires and timber harvesting. This results in a reduced cone crop (and feeding habitat) for white-headed woodpecker. Since the presence of suitable feeeding habitat is critical to the white-headed woodpecker in TFL 15, feeding habitats have been given the primary life requisite and will be incorporated into the hierarchy of life requisites as follows:

1. ***Year-round feeding habitat***
2. ***Reproducing habitat***
3. ***Year-round security-thermal habitat***

QUANTIFIABLE ECOSYSTEM ATTRIBUTES:

This section describes how each life requisite for white-headed woodpeckers relates to specific ecosystem attributes such as site series, vegetation cover, etc. Table 23 below is a summary of these ecosystem attributes and life requisites.

Table 23: Quantifiable Ecosystem Attributes for White-headed Woodpecker Habitats			
Season	**Primary Life Requisite**	**Rating Code**	**Quantifiable Ecosystem Attribute**
Winter	Feeding	FDW	• Associated with ponderosa pine and mixed conifer stands; • Prefers drier, open stands of mature ponderosa with >60 cm dbh; • Preferred ponderosa pine stands with structural stages of 6-7, typically this results in stands >140 years old; • Preferentially restricted to the PP, IDF, and BG (if trees present), however wandering individuals are also uncommonly found in the ICH, MS, and ESSF; • Wildlife tree classes of 1-2 are used extensively for feeding; • Approximately 50% of their diet consists of ponderosa pine seeds from late summer to winter while insect content increases from May to September; • Minimum territory size is approximately 8 – 10 ha (5 pairs / 40 ha), with larger areas likely to be maintained in British Columbia (RBCM 1996, Cannings 1995, Bryan and Sarell 1994); • Sparse understorey within preferred habitat.
	Security – Thermal	STW	• Same as winter food habitat attributes described above.
Growing	Feeding	FDG	• Same as winter food habitat attributes described above.
	Security - Thermal	STW	• Same as winter security-thermal attributes described above.
		RE*	• Breeding restricted to the PP, IDF, and BG (if trees present); • Depend on mature and old growth stands of >140 years old ponderosa pine with snags >25 cm dbh for nesting, roosting, and feeding; • Average nesting tree dbh at nest height of 60 cm; • Cavity nester of coniferous trees; • Typically, southern exposures are used more predominantly than any other aspect; • Open canopy of mature and over-mature coniferous stands; • Leaning or broken-topped snags or stumps are commonly used an nest trees often have heartrot (wildlife tree class 5-6); • Preferred snag density of 5.8 / ha (Bryan and Mulholland 1992); • Most nests found within 3 m of the ground with nesting height ranges of 2.5 to 9 m. • Breeding territories are about 100 ha in size in continuous old-growth pine but larger (over 300 ha) in fragmented areas.
*** Life requisites that were rated in the field during data collection.**			

MODEL ASSUMPTIONS:

1. Habitats with continuous and homogenous stands of mature ponderosa pine will provide the provincial benchmark habitats for white-headed woodpecker.

2. Ponderosa pine stands within a 60-100 year old range are the primary structural stage preferences for white-headed woodpeckers.

3. The white-headed woodpecker is a cavity nester, therefore nesting preferences are snags.

4. Site modifiers that influence habitat suitability ratings for the white-headed woodpecker and generally require a downgrade in ratings include “a” (active floodplain – all seasons) and “z” (very steep, greater than 100% slope – all seasons).

WHITE-HEADED WOODPECKER
HABITAT SUITABILITY RATINGS

RATED LIFE REQUISITES:

The life requistes that have been selected for the final ratings for white-headed woodpecker include:

- FDA (All Season / Feeding)
- RE (Reproducing)

HABITAT SUITABILITY RATINGS SCHEME:

Habitats for white-headed woodpecker were rated using a 4-class rating scheme, acknowledging the species' moderate to high mobility and researchers' intermediate knowledge level about its habitat requirements (Table 24).

Table 24: Habitat Suitability Rating Scheme for White-headed Woodpecker

Suitability Rating	Level of Use by White-headed Woodpecker	Suitability Limits (%)
H	High	76 – 100
M	Moderate	26 – 75
L	Low	1 – 25
N	Nil	0

PROVINCIAL BENCHMARKS:

The provincial benchmarks for white-headed woodpecker have not been identified by the Ministry of Environment, however given the limited distribution of the species within the province, it is reasonable that the following Ecosections contain the highest rated habitats in the province (Table 25).

Table 25: Highest Rated Ecosections for White-headed Woodpecker in British Columbia

Southern Okanagan Basin
Northern Okanagan Basin
Southern Okanagan Highland
Northern Okanagan Highland
Okanagan Range

These benchmarks are partially based on the limited number of observations occurring within the province.

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