Species - Habitat Model for White-breasted Nuthatch


Species data

Common Name: White-breasted Nuthatch
Scientific Name: *Sitta carolinensis*
Species Code: B-WBNU
BC Status: Provincial Listing: Yellow

Identified Wildlife

Status: None

COSEWIC: Not at Risk (BC Conservation Data Center 2006)

Project Date

Area: Merritt Timber Supply Area
Ecoprovince: Southern Interior
Ecoregions: Northern Cascade Ranges, Pacific Ranges, Thompson-Okanagan Plateau, Interior Transition Ranges, Okanagan Range
Ecosections: Eastern Pacific Ranges (EPR), Guichon Uplands (GUU), Hozameen Ranges (HOR), Nicola Basin (NIB), Okanagan Ranges (OKR), Pavilion Ranges (PAR), Southern Thompson Upland (STU), Thompson Basin (THB)
BEC Variants: AT, AT-Emwp, BGhx2, BGxw1, CWHms1, ESSFdc2, ESSFdcp, ESSFmw, ESSFmpw, ESSFxc, ESSFxcp, IDFdk1, IDFdk1a, IDFdk2, IDFxh1, IDFxh1a, IDFxh2, IDFxh2a, MHmm2, MHmm2p, MSdm2, MSmw, MSxk, PPxh1, PPxh2, PPxh2a

Map Scale: 1:20,000

1 ECOLOGY AND HABITAT REQUIREMENTS

1.1 Description

March 2008
The White-breasted Nuthatch is classified as a passerine or songbird and is the largest of the three nuthatch species found in British Columbia. The other two species are the Red-breasted Nuthatch \((Sitta canadensis)\) and the Pygmy Nuthatch \((Sitta pygmaea)\). Two subspecies of the White-breasted Nuthatch occur in the province; \(S. c. tenuissima\) found in the southern interior and \(S. c. cookei\) located in the Peace lowlands.

The White-breasted Nuthatch measures 13 to 15.5 cm in length, between 18 and 30 g in weight and has a wingspan ranging from 8.8 to 9.4 cm. This species has a bright white belly, breast and face. The white on the face extends above the black eyes. They have black caps, which extend partially around the neck like a collar and this sharply contrasts with its upperparts of slate-gray. The wing feathers are dark, but the tertials and secondaries are edged greyish-white. The undertail coverts are chestnut in colour. The tail is short and black with white corners that are very evident in flight. The long black bill is either straight or slightly upturned at the tip (Godfrey 1986; Pravosudov and Grubb 2000; Alsop 2001). The sexes are similar in appearance, but the female has a greyer cap. As with all nuthatch species, the White-breasted is typically observed hopping headfirst down or sideways on tree trunks foraging for food. The most common call of this species is a repeated slow low nasal “yank”.

1.2 Diet and Foraging Behaviour

During the breeding season, the White-breasted Nuthatch forages on spiders, weevils, beetles, woodborers, gypsy moths and tent caterpillars (Fenger et al. 2006). In the winter it will continue to feed on insects such as bark beetles, but will also forage on nuts and seeds, placing the seeds in crevices of bark and hammer on them with its bill to get them open, or caching them for later use (Pravosudov and Grubb 2000; Alsop 2001; BC Conservation Data Center 2006). They will also frequent bird feeders stocked with sunflower seeds or suet. During the winter this species can be found in mixed species foraging flocks containing chickadees, kinglets, Brown Creepers \((Certhia americana)\) and other nuthatch species (Bock 1969).

1.3 Reproduction and Nesting

In British Columbia the White-breasted Nuthatch usually breeds in open mature conifer forests, in a cavity of a living or dead tree. This species is a primary cavity excavator, and they will use their bill to create a new cavity in a decayed tree (Campbell et al. 1997). They will also utilize pre-existing natural cavities, old woodpecker holes and nest boxes (Cannings et al 1987). Egg laying begins in late April and may continue until mid June. Clutch sizes range from 5 to 10 eggs, with a majority of clutches having between 5 and 7 eggs. Eggs are typically creamy white and speckled with reddish brown. The incubation period lasts up to 12 days and the male feeds the female while she incubates. The young are able to fledge the nest in 14 days, and are fed by parents for an additional two weeks. (Campbell et al. 1997; Alsop 2001; BC Conservation Data Center 2006). The White-breasted Nuthatch generally produces one brood per year (Alsop 2001). Breeding pairs form long-term bonds and remain together through the entire year (Fenger et al. 2006). Brown-headed Cowbird \((Molothrus ater)\) parasitism was not recorded in the 34 White-
breasted Nuthatch nests recorded with eggs or young in British Columbia (Campbell et al. 1997). This species is rarely parasitized by cowbirds in North America, due to its cavity nesting habits (Friedmann et al. 1977). The lifespan of the White-breasted Nuthatch has been recorded in the wild at 9 years and 10 months (USGS 2007).

1.4 Dispersal and Movements

The White-breasted Nuthatch is a permanent resident throughout its breeding range. They will make local post breeding movements from higher elevation breeding areas to lower elevation valley bottoms in September and October (Campbell et al. 1997; BC Conservation Data Center 2006; Cannings et al. 1987). Feeding territories of resident pairs range from 10 to 20 ha, and these are defended year round (BC Conservation Data Center 2006).

2 Distribution

2.1 Provincial Range

Uncommon resident in the valleys of the southern interior, especially the Okanagan, Similkameen and Thompson. Rare to uncommon and local resident in the central interior and Peace lowlands (Campbell et al. 1997).

2.1.1 Elevation Range

Reproduction (RE) 300 m to 1200 m Living (LI) sea level to 1220 m (Campbell et al. 1997).

3 FOOD/COVER LIFE REQUISITES AND HABITAT-USES

3.1 Reproducing (RE) - Growing

In British Columbia the White-breasted Nuthatch breeds in open (<70 percent canopy closure) continuous forests composed primarily of ponderosa pine and mixed ponderosa pine and Douglas-fir, although they are sometimes observed in deciduous forests and rural areas (Campbell et al. 1997). They prefer mature to old-growth stands for nesting and foraging (Campbell et al. 1997; Rumble et al. 1999; BC Conservation Data Center 2006). Nest trees include ponderosa pine, Douglas-fir, trembling aspen, western larch, black cottonwood and paper birch (Campbell et al. 1997). In British Columbia, half of the nests observed were located in nest boxes; while the rest were found in tree cavities, with a majority of the trees being dead ponderosa pines > 30 cm DBH (Fenger et al. 2006). This is in contrast to a study site in Colorado where all of the White-breasted Nuthatch nests found were located in cavities in live pines, even though dead pines were present in the area (McEllin 1979). Nest heights ranged from 1.5 to 21 m off the ground, with a majority located between 3 and 6 m. The nest cups are lined with fur, feathers, grass, moss, bark fibres or other fine materials (Campbell et al. 1997). Nest cavities are sometimes re-used in consecutive years.
3.2 Living (LI)

It is assumed that suitable living habitat is similar to breeding habitat requirements. This species frequents open forests containing mature ponderosa pine, Douglas-fir or western larch. In the higher elevation areas it can be found using dry stands of lodgepole pine and western white pine (Campbell et al. 1997). In other parts of North America it is also known to utilize small patches of deciduous trees, but is rare in wetland meadows (Rumble et al. 1999). In northern areas of the province, especially the boreal plains, this species will utilize stands of trembling aspen, cottonwood and poplar that have some spruce present. Male and female nuthatches roost separately year round. Roosts may be located in a natural cavity, old woodpecker hole, or rarely in a nest cavity or behind loose bark (Fenger et al. 2006).

<table>
<thead>
<tr>
<th>Month</th>
<th>Season*</th>
<th>Life requisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>Winter</td>
<td>Living</td>
</tr>
<tr>
<td>February</td>
<td>Winter</td>
<td>Living</td>
</tr>
<tr>
<td>March</td>
<td>Winter</td>
<td>Living</td>
</tr>
<tr>
<td>April</td>
<td>Early Spring</td>
<td>Reproduction/Living</td>
</tr>
<tr>
<td>May</td>
<td>Late Spring</td>
<td>Reproduction/Living</td>
</tr>
<tr>
<td>June</td>
<td>Summer</td>
<td>Reproduction/Living</td>
</tr>
<tr>
<td>July</td>
<td>Summer</td>
<td>Reproduction/Living</td>
</tr>
<tr>
<td>August</td>
<td>Summer</td>
<td>Living</td>
</tr>
<tr>
<td>September</td>
<td>Fall</td>
<td>Living</td>
</tr>
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<td>October</td>
<td>Fall</td>
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<tr>
<td>November</td>
<td>Winter</td>
<td>Living</td>
</tr>
<tr>
<td>December</td>
<td>Winter</td>
<td>Living</td>
</tr>
</tbody>
</table>

3.3 Life Requisites to be Modelled

The life requisites that will be rated for the White-breasted Nuthatch are:
Living (LI)-All seasons as habitats are considered the same year-round.

<table>
<thead>
<tr>
<th>Life Requisite</th>
<th>PEM Attribute</th>
</tr>
</thead>
<tbody>
<tr>
<td>Living – All seasons</td>
<td>• BGC Zone, site series, structural stage</td>
</tr>
</tbody>
</table>

4 RATINGS

There is an intermediate knowledge of the habitat requirements of White-breasted Nuthatch in British Columbia, so a 4-class rating scheme will be used (RISC 1999; Table 3).
Table 3. Habitat Capability and suitability 4-Class Rating Scheme. (from RIC 1999)

<table>
<thead>
<tr>
<th>% of Provincial Best</th>
<th>Rating</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>100% - 76%</td>
<td>High</td>
<td>H</td>
</tr>
<tr>
<td>75% - 26%</td>
<td>Moderate</td>
<td>M</td>
</tr>
<tr>
<td>25% - 1%</td>
<td>Low</td>
<td>L</td>
</tr>
<tr>
<td>0%</td>
<td>Nil</td>
<td>N</td>
</tr>
</tbody>
</table>

4.1 PROVINCIAL BENCHMARK

Okanagan Valley of the Southern Interior (Campbell et al. 1997). In the Merritt TSA, zones with ponderosa pine (especially the PP zone) may provide optimal habitat suitability for White-breasted Nuthatch.

4.2 RATINGS ASSUMPTIONS

Based on its elevation range, the BG, PP and IDF zones in the Cascades District will provide suitable habitat for White-breasted Nuthatch (Stevens 1995).

Living (LI) – All seasons

1. In the PP and IDFxh zones: Mesic and xeric sites with structural stages 6 and 7 are rated High, followed by structural stage 5 rated Moderate. Structural stages 3 & 4 are rated Low and structural stages 0 – 2 rated Nil. Hygric sites with structural stages 5 - 7 are rated Low, with structural stages 0 – 4 rated Nil.

2. In the IDFdk and CWH subzones typically do not contain ponderosa pine are rated Nil for all site series and structural stages.

3. In the BG zone: Sites with ponderosa pine are rated Moderate for structural stages 5 – 7. All other structural stages rated Nil.

4. The AT, ESSF, MS, and MH zones are above the breeding elevation for White-breasted Nuthatch and are rated Nil for all site series and structural stages.

5. All Cultivated Fields, Gravel Pits, Urban Interfaces, Rock outcrops, Talus, Lakes, Rivers, and cutbanks are rated Nil.

4.3 RELIABILITY QUALIFIER

Table 4. Number of plots in each rating class form field work.

<table>
<thead>
<tr>
<th></th>
<th>High (1)</th>
<th>Mod High (2)</th>
<th>Moderate (3)</th>
<th>Low (4)</th>
<th>Very Low (5)</th>
<th>Nil (6)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>B-WBNU-A</td>
<td>20</td>
<td>27</td>
<td>24</td>
<td>26</td>
<td>24</td>
<td>85</td>
<td>206</td>
</tr>
</tbody>
</table>

In the field, units rated high to moderately high included the BGxw1 – 02; IDFdk1 – 01, 04 and 05; IDFdk2 – 03; IDFxh1 – 02, 01, 04, 05, 06, 07-YS and 81-ESb; PPxh1 – 04; PPxh2 – 01, 04b and F130.

March 2008
Based on a review of information extrapolated from similar ecosystems, knowledge of the species and ground truthing at the reconnaissance level, the species-habitat model has a Moderate/High Reliability.

5 RATINGS ADJUSTMENTS

There are no adjustments.
6 REFERENCES


March 2008