

Forest Development Plan  
Red- and Blue-listed Species Inventory  
for Woodpeckers:

Lewis's Woodpecker, White-headed Woodpecker and  
Williamson's Sapsucker

by

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## EXECUTIVE SUMMARY

Inventory was conducted for the red-listed white-headed woodpecker and the blue-listed Williamson's sapsucker and Lewis's woodpecker in selected forest development plan areas in the Boundary, Merritt and Penticton Forest Districts. Habitat needs of these species were summarized and forest development plans reviewed for overlap with the nesting habitat of these species.

White-headed woodpeckers were detected once just east of Naramata, B.C., in mature ponderosa pine forest. No nest was found, but this area is within proposed Cutting Permit 315 of Gorman Bros. Lumber Ltd.

Williamson's sapsuckers were detected in 4 locations with nests found in 3 of the locations. Nests were found within proposed Cutting Permits 121 and 451 in TFL 15 of Weyerhaeuser Canada Ltd. and adjacent to Cutting Permit 211 of Pope and Talbot Ltd. 4-ha wildlife tree patches should be placed around the 3 Williamson's sapsucker nest sites found based on existing draft management guidelines. Two of the nests were in large (92-110 cm dbh), live western larches while the third was in a dead 32-cm dbh birch. The locations were all between 1020 and 1440 m elevation on the plateau between the Okanagan valley and the Kettle Valley at Rock Creek.

30 nests of other woodpecker and sapsucker species were found during this inventory. The majority (79%) of nests were in deciduous broad-leaved trees, particularly in trembling aspen (mean 36-cm dbh) and birch (mean 33-cm dbh).

No habitat was inventoried for Lewis's woodpecker, despite its blue-listed status, because no Forest Development Plans overlapped with potential nesting habitat. However, no woodlot plans (which tend to be at lower elevations and may well overlap with Lewis's woodpecker nesting habitat) were examined, nor were Small Business plans examined in Boundary and Penticton Forest Districts because of time and budget constraints. Potential nesting sites exist in Vernon Forest District, but no plans were even reviewed there because of higher priority sites for inventory in other Forest Districts. Woodlot plans, Small Business plans, Vernon Forest District plans, and new Cutting Permits proposed in Merritt, Penticton and Boundary Forest Districts should be inventoried next year, when I estimate 30-35 field days by a crew of two, and 20 office days by two people would be required to inventory about 30 Cutting Permit areas or woodlots. Recommendations are made for more efficient presence/absence inventory methods for next year with first visits in late-April/May followed by nest searches in late-June where species were present.

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Note that maps reproduced and bound in this report in 8.5x11 inch format are half-scale, e.g. a 1:15,000 scale in map legend refers to the original 11x17 inch format maps and is actually 1:30,000 at 8.5x11 inch format. Original Appendix 1 at full scale is available bound separately. All Maps are NAD27 projection.

## INTRODUCTION

This project was designed to collect inventory and habitat information for white-headed woodpecker, Williamson's sapsucker and Lewis's woodpecker within selected Forest Development Plans within the Southern Interior Region of B.C. Environment. These species have been designated on the Red and Blue Lists by B.C. Environment (1995) and are generally very uncommon and/or their distribution not well known.

The specific objectives of this report were to:

- determine potential nesting habitats for white-headed woodpecker, Williamson's sapsucker and Lewis's woodpecker within proposed timber harvesting areas of Forest Development Plans,
- conduct inventory for the species listed above within the identified Forest Development Plan areas to a presence/absence level for nesting pairs,
- produce detailed maps showing positive locations and all sampling sites or transect locations, and
- record information on other Red or Blue-listed species observed in the search areas.

## Acknowledgements

This project and report was completed under contract to the British Columbia Ministry of Environment, Lands and Parks through the Habitat Protection Section, of the Okanagan Sub-Region of B.C. Environment, Penticton, B.C. Funding was supplied through the Forest Renewal B.C. Alan Peatt, B.C. Env't., Penticton, served as contract monitor. Ross Munro, Ray Wershler and Wayne Smith provided technical assistance.

## STUDY AREA

The study area was in the southern interior of British Columbia (see Figure 1). The nominal study area included the Merritt, Penticton, Vernon Forest Districts of the Kamloops Forest Region of the B.C. Ministry of Forests and the Boundary Forest District of the Nelson Forest Region of the B.C. Ministry of Forests. However, no actual inventory was undertaken in the Vernon Forest District because the highest priority areas for sampling were all in the other 3 forest districts.

The study area is in the Southern Interior Ecoprovince and includes parts of the Northern Cascade Ranges, Interior Transition Ranges, and Thompson-Okanagan Plateau Ecoregions. Actual inventory was undertaken in parts of the Pavilion Ranges, Southern Thompson Upland, Northern Okanagan Basin, Southern Okanagan Basin, Okanagan Range, and Northern Okanagan Highland Ecosections.

This study area includes the following Biogeoclimatic (BEC) Zones that were inventoried: IDFxh2, IDFdk2, IDFdk1, ICHmk1, IDFxh1, IDFdm1, IDFmw1 and MSdm1 (Lloyd et al. 1990, Braumandl and Curran 1992). While the distribution of these species also includes the Ponderosa Pine (PP) zone, there were no proposed Forest Development Plans at Initial Plan stage in the PP zone among those examined.

## SUMMARY OF EXISTING INFORMATION

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

Lewis's woodpecker was the subject of a fairly recent status report in British Columbia (Siddle and Davidson 1991) as well as being described in a species account in the Managing Identified Wildlife Handbook of the Forest Practices Code of B.C. (B.C. Min. of Forests and B.C. Emt. 1996). To briefly summarize these here, "Lewis's woodpecker breeds locally throughout lowland areas of B.C.'s southern interior from the U.S. border north to Williams Lake, Revelstoke and Invermere. . . from sea level to 1150 m elevation. Its centre of breeding abundance is in the Okanagan Valley." (B.C. Min. of Forests and B.C. Emt. 1996). Optimal breeding habitats contain large snags (>30 cm dbh) and an open tree canopy (<25%). Other desirable breeding habitats are partially logged or burned forest and deciduous and riparian woodlands-particularly black cottonwood forests.

### White-headed Woodpecker (*Picoides albolarvatus*)

The white-headed woodpecker was the subject of a recent status report in British Columbia (Cannings 1995) as well as being described in a species account in the Managing Identified Wildlife Handbook of the Forest Practices Code of B.C. (B.C. Min. of Forests and B.C. Emt. 1996). To briefly summarize these here, "white-headed woodpeckers nest locally in the southern Okanagan valley from Osoyoos north to Naramata. . . This species requires dry, open (<70% canopy cover) of mature forest (age class 7-9) with large diameter (>60 cm dbh) ponderosa pine." (B.C. Min. of Forests and B.C. Emt. 1996). Home range sizes of 100-400 ha will limit this species to large areas of this type of habitat.

### Williamson's Sapsucker ssp. *thyroideus* (*Sphyrapicus thyroideus thyroideus*)

Williamson's sapsucker was the subject of a recent status report in British Columbia (Cooper 1995) as well as being described in a species account in the Managing Identified Wildlife Handbook of the Forest Practices Code of B.C. (B.C. Min. of Forests and B.C. Env't. 1996). To briefly summarize these here, the *thyroideus* subspecies of Williamson's sapsucker breeds in the Thompson-Okanagan Plateau, west to Manning Park and Lytton. They require dry, open to semi-open stands of mature or old douglas-fir, ponderosa pine, and western larch between 780 and 1300 m elevation although stands of large diameter hardwoods are occasionally used for nesting (FPC 1996). Home range sizes as small as 4 ha (data from outside B.C.) indicate this species may be able to use relatively small patches of suitable habitat.

## METHODS

Selection of Forest Development Plan (FDP) areas to be inventoried were selected firstly for occurrence within the mapped range of each species, and secondly for nesting habitat characteristics based on forest cover typing from the forest cover maps and elevational constraints. Not all applicable Forest Development Plans could be reviewed because of the limited number of areas that could be searched. Only the following Forest Development Plans were reviewed:

#### Penticton Forest District:

Weyerhaeuser Canada Ltd. (TFL 15 and Forest Licence),  
Gorman Bros. Lumber Ltd.,  
Riverside Forest Products Ltd. (TFL 49 and Forest Licence);

#### Boundary Forest District:

Pope and Talbot Ltd. (Forest Licence only);

#### Merritt Forest District:

Weyerhaeuser Canada Ltd.,  
Tolko Industries Ltd.,  
Aspen Planers Ltd.,  
Ardeu Wood Products Ltd.,  
Small Business Forest Enterprise Program.

#### Vernon Forest District: None.

No Forest Development Plans were found to target low-elevation valley bottom forest stands or the very open stands that Lewis's woodpeckers prefer, so that we did not conduct any searches specifically for Lewis's woodpeckers. Areas selected for inventory were co-ordinated with the FNOSEPS (First Nations) crew searching for white-headed woodpeckers in the south Okanagan so that there would be no overlap in areas searched. Two FDP areas were selected specifically for their occurrence within traditional white-headed woodpecker breeding range and appropriate mature ponderosa pine forest. Three other FDP areas were selected based on the same habitat criteria but were outside the most recent white-headed woodpecker breeding ranges. Eleven other FDP areas were selected primarily because of their potential as Williamson's sapsucker breeding habitat--mature Douglas-fir, ponderosa pine and/or western larch forests.

This contract was initiated in mid-June which was too late to sample the "drumming" season of woodpeckers when they are nest-building. Therefore, call-playback surveys were not relied upon, although they were tested on an ad-hoc basis to determine whether they would have been useful. Tapes of the calls and drums of white-headed woodpeckers and Williamson's sapsuckers were played to listen for responses using the protocol suggested by the RIC manual (1996, p.59). However, the main inventory method was nest searches. This method is not widely applicable since it can only be used for a 3-4 week period at the end of June and beginning of July in this area, but is very efficient when it can be applied. The method relies on hearing the begging calls of young woodpeckers in the nest, then waiting for the adults to appear to identify the species, or else detecting pairs of adults and then thoroughly searching the areas where pairs are found.

Inventory was done to a presence/absence level based on one visit by a team of up to 3 workers depending on the size of the area to be inventoried. To detect nests, fairly intensive surveys covering a high proportion of the area to be sampled was required since we did not know exact distances over which we might hear the young. In my experience, three-toed woodpecker and red-naped sapsucker young can be heard up to 300 m calling from the nest, but the young may not always be this loud, and sometimes they are only heard from distances closer to 50 m. Transects providing coverage of the proposed cutblocks, so that any point would be approached to within 200 m, and preferably to within 100 m, were mapped out before beginning inventory. Searches were usually conducted between 0600 hrs and 1200 hrs walking slowly (0.5-2 km/hr). All occurrences of woodpeckers or sapsuckers heard or seen were recorded. All young heard from a nest were investigated to determine the species of nesting woodpecker or sapsucker. Exact locations for all woodpecker and sapsucker nests were determined using a GPS receiver, or by plotting the nests on 1:15,000 air photos or maps for later determination of UTM coordinates.

## RESULTS

Inventories were conducted in 18 geographically separate areas covering one Small Business Forest Enterprise Program (SBFEP) chart area in the Merritt Forest District, 3 Cutting Permit (CP) areas in the Boundary Forest District, 2 CP areas in the Merritt Forest District, and 10 CP areas in the Penticton Forest District (Table 1). No cutting permit areas at the Initial Plan stage in any of the Forest Development Plans that were reviewed were in potential Lewis's woodpecker nesting habitat. Therefore, we did no inventories where Lewis's woodpeckers were the target species, and did not detect any in the areas that we did inventory.

**Table 1.** Species of woodpeckers and sapsuckers found in the inventoried Cutting Permit and Small Business Chart Areas.

White-headed Woodpecker

**Figure 21.** Inventory areas and locations of target species detected in the study area in the southern interior of British Columbia.

**Table 21.** Locations and habitat data for target woodpecker species found.

White-headed woodpeckers were only detected at one location (Table 2, Figure 1) in mature ponderosa pine forest near the old Kettle Valley Railway Line above Naramata, B.C., by Ray Wershler. The birds were not seen well, so that identification was based on one brief glimpse and the calls, with which Ray was familiar with from California. The call of what was possibly a white-headed woodpecker was heard at 1115 hrs on June 21, 1996. Within 10 minutes, the 2-note call was heard again and a brief glimpse was had of a dark-backed woodpecker flying into a thick stand of ponderosa pine. This bird called about another 5 times while Ray tried to get closer for a better look, when another bird, with the same call, called twice about 75 m away. Another call of the same type was then heard, which may have been the second bird after it had moved, while the first bird called once more from the thick stand of pines. Both these birds did not call again and were not seen again despite a diligent search of the area until 1230 hrs. Ray returned to the site with the other 2 searchers at 1400 hrs and played the white-headed woodpecker tape of calls and drums through a portable megaphone, but only a hairy woodpecker responded. The calls of the hairy woodpecker were different from the previously heard calls at the site, and the white back of the hairy woodpecker was not seen in the brief glimpse of the bird that Ray first had earlier in the day. The only other dark-backed woodpeckers in the area have very different calls that are not likely to be confused with those of a white-headed woodpecker.

### Williamson's Sapsucker

Williamson's sapsuckers were detected at 4 locations in a fairly limited geographical area, with nests found at 3 of the locations (Table 2, Figure 1). Nests were detected while doing the transect surveys, but were detected in a slightly different manner in each case. The first nest found at Vaseux Creek (CP 121, Figure 1 site 11) was found when the young were heard begging from the nest. The second nest was found at Baldy Creek (CP 451, Figure 1 site 12) after an adult male was heard, then a female sighted and the immediate area searched for 45 minutes with no results. Heavy rain curtailed further searching that day, so that the search was continued 2 days later, when it took less than a half hour to find the nest. The third nest was found when the searcher first heard a male calling, then decided to check out a likely-looking wildlife tree (a veteran 110 cm dbh western larch in a young 15 cm dbh lodgepole pine stand) and discovered the pair and the nest site.

The Williamson's sapsucker nest sites were all quite different in forest type: 1)a mature mesic western larch forest, 2)a wet birch/spruce forest, and 3)a mesic young lodgepole pine forest with a few western larch veteran trees. However, they were all in a fairly narrow elevation band from 1020-1400 m and were on gentle slopes ( $\leq 12\%$ ). The location where no nest was found (CP 471, Figure 1 site 13) was in a mature lodgepole pine/western larch forest, and there may be a nest somewhere in the general

area but its location could not be determined, and, if present, is probably not close to the transects searched.

### Lewis's Woodpecker

No sites were specifically searched for Lewis's woodpecker nests, and none were seen in any of the other sites searched for woodpeckers. However, during late August searches for blue-listed Cascade mantled ground squirrels, 3 Lewis's woodpeckers were seen near Friday Mt. west of Princeton in Cutting Permit 680 of Weyerhaeuser Canada Ltd. in the Merritt Forest District (UTM 673640 5456000). These birds were probably on migration since the site appeared to be too high in elevation (1750 m) to qualify as usual nesting habitat which is below 1150 m. (See Map 6 of Gyug 1996 for exact location.)

### Other Species of Woodpecker

Seven other species of woodpeckers were found in the areas searched, with red-naped sapsuckers being the most commonly found species (Table 1). Thirty nests of 5 other species of woodpeckers were found, and The most commonly used nest tree was trembling aspen (58% of 33 nests found), followed by paper birch (21%) followed by western larch (12%), ponderosa pine (6%) and spruce (3%). Most nests in aspen were in live trees (14 of 19 nests) compared to nests in birch which were usually in dead trees (5 of 6). Diameters of aspen and birch used for nesting were similar with a mean of 36 cm dbh for aspen (range of 20-60 cm dbh) and a mean of 33 cm dbh for birch (range 28-44 cm dbh). The western larch used for nesting by the Williamson's sapsuckers were relatively large (92 and 110 cm dbh) compared to the only 2 other nests of a three-toed woodpecker and a red-naped sapsucker in 30 and 26 cm dbh western larches respectively. The only nests found in ponderosa pine were a red-naped sapsucker nest in a 40 cm dbh ponderosa pine and a three-toed woodpecker nest in a 55 cm dbh ponderosa pine. Both of these pine trees had been killed in a 1987 burn in the Nicola valley. Only one nest (red-naped sapsucker) was found in a spruce (53 cm dbh with a broken top). No woodpecker or sapsucker nests were found in Douglas-fir or lodgepole pine, even though these may have been the most common trees in the areas sampled.

## DISCUSSION

### White-headed Woodpecker

Based on only one observation, and no nest records, white-headed woodpeckers do indeed appear to be deserving of their red-listed status in British Columbia. There does not appear to be much remaining old-growth ponderosa pine habitat in the Okanagan. However, there does appear to be more old growth ponderosa pine habitat in the Merritt Forest District with many very large (>100 cm dbh) ponderosa pine found in some of the stands at Hendy and Shouz Creeks. However, despite what looks superficially to be potential nesting habitat, white-headed woodpeckers have never been reported from that area and there must be other factors controlling their distribution besides just the occurrence of ponderosa pine.

#### Williamson's Sapsucker

Based on a very limited geographic range in Canada, their uncommonness even within that range, and their apparent dependence on very large western larch (this study and Gyug and Bennett 1995) in this area, this subspecies is probably deserving of its blue-listed status. With only 4 new locations to add to the records, we really do not have much new habitat information to discuss. However, I could find no previously published record of nesting in birch trees in B.C. so that this may be a new finding. Also, the one nest found at 30 m height in a western larch is apparently the highest recorded in B.C. (previously noted maximum was 18 m cited in B.C. Min. Forests and B.C. Env't. 1996).

### CRITIQUE OF INVENTORY PROTOCOLS

For presence/absence surveys for woodpeckers, the RIC protocol suggests call playback during the breeding season as the preferred method (RIC 1996). While we did not use this method regularly because the main drumming season was over by the time our surveys began, when we did use it, we found it to be very efficient at eliciting responses from woodpeckers and sapsuckers. However, we did not detect any species using the call playback method that we did not also detect simply by listening while walking transects. The advantage of using the playback method is that species can be detected earlier than waiting for them to call or drum, at least if used when woodpeckers are establishing breeding territories and excavating nests, rather than later in the breeding season during our inventories of 1996.

It does not appear, however, that 6 visits to a site will be necessary to determine presence/absence as the RIC protocol suggests. We detected many species of woodpeckers or sapsuckers at a site with only one visit, and often detected woodpecker or sapsucker nests. A single "visit" using our methods included a search of 50-150 ha per person per morning (4-6 hours). During late June and early July when drumming is

infrequent, more than one visit to an area is probably required to detect uncommon woodpeckers that are not actually nesting in the searched area. For example, at Baldy Creek where a Williamson's sapsucker nest was found, only on the 4th visit to the area did we detect a downy woodpecker at the site. (First visit was cut short by rain, second visit found the nest, third visit was for 2 other observers to also check the nest, and 4th visit was one week later to check on progress of nest.) If we had sampled earlier in the breeding season when drumming was more frequent, one visit per site may have been sufficient.

I would suggest the following protocol for inventorying red- and blue-listed woodpecker and sapsucker species next year: Inventory the site early in the breeding season (late April or early May) using call/drum playbacks to determine species presence; make intensive ground searches to find nests in late June and early July only at those sites where target species were detected. This would eliminate time spent making intensive ground searches where the species was not present. In Cutting Permit areas where there is no road access, this would not save much time because usually a full day is still required to get to the site, sample, and then get back to a road. However, this would save time in areas that are near existing roads.

No inventories were conducted in woodlots. There was insufficient time or budget within the contract for reviewing woodlot plans and conducting inventories within woodlots. This would have to be remedied in the next year of inventory when more time should be allowed if woodlots are to be included in the inventory. In addition, SBFEP forest development plans were not reviewed in Penticton or Boundary Forest Districts, and more time should be allowed for within the next year's inventories. Many of the woodlots and SBFEP plans are in low elevation areas in potential nesting habitat for these species, and these should be included for inventory next year.

My suggestion at this point is to allow for 30 areas to be inventoried next year. This would include newly proposed Cutting Permits in Initial Plan Stage, as well as some woodlots and Small Business areas not surveyed last year. Forest Development Plan review should take 10 office days by a biologist and by a technician. Roadside callback surveys at 30 areas would take 20 crew field-days as long as some areas near to each other can be sampled in a single field day. Repeat visits to search for nests should allow for an additional 10-15 crew field-days. Data tabulation and report writing would take an additional 10 biologist and technician days. Total estimated time required would be 30-35 field days by a crew of two, and 20 office days by a biologist and technician.

## **MANAGEMENT CONCERNS**

Wildlife Tree Patches of at least 4-ha should be put around the 3 discovered Williamson's sapsucker nest sites. The boundary of the block in Pope and Talbot's CP211 has already been changed from the original proposal so that the nest is now outside the proposed block. The proposed block boundaries of the other 2 locations in Tree Farm Licence 15 should be changed to exclude the nest locations.

Very large western larch appear to be very important to Williamson's sapsuckers. I do not know of any estimates of how many stands still contain such prime nesting trees (live western larch >75 cm dbh) but there may not be that many, and there is no inventory of this particular feature. Throughout the geographic area of their greatest abundance (from the Okanagan valley east to Greenwood and within 30 km of the U.S. border), wildlife tree patches should be centred on such large western larch.

Where larch is lacking, Williamson's sapsucker appear to be very uncommon, and depend on aspen, or perhaps birch, for nesting. In these areas, wildlife tree patches should be targeted for wet draws or gullies where large birch or aspen are abundant. The one Williamson's sapsucker nest we found in a birch was in an area that had been long ago high-graded for large spruce (or perhaps Douglas-fir as well). However, given present safety regulations, this site would probably now be treated differently and the standing birches presently used for nesting would be felled at the time of timber harvesting. Consequently, while older methods of timber harvesting might have left some of these natural hardwood stubs for nesting, it appears that present regulations would not allow it, and there is little choice but to use wildlife tree patches to preserve nesting habitat.

## CONCLUSION

Inventory was conducted for red and/or blue-listed woodpeckers--white-headed woodpeckers and Williamson's sapsuckers--in selected forest development plan areas in the Boundary, Merritt and Penticton Forest District. White-headed woodpeckers were detected once just east of Naramata, B.C., in mature ponderosa pine forest. Williamson's sapsuckers were detected in 4 locations with nests found in 3 of the locations. Two of the nests were in large (92-110 cm dbh), live western larches while the third was in a dead 32-cm dbh birch. 4-ha wildlife tree patches should be placed around the 3 Williamson's sapsucker nest sites found. The locations were all between 1020 and 1440 m elevation on the plateau between the Okanagan valley and the Kettle Valley at Rock Creek. 33 nests of woodpeckers and sapsuckers were found in total, 30 of which were incidental to the search for red- and blue-listed species. The majority of nests were in large (mean 36 cm dbh) trembling aspen (58%) and large (mean 33 cm dbh) birch (21%).

No habitat was inventoried for Lewis's woodpecker, despite its blue-listed status, because no proposed cutting permits in the Forest Development Plans that were reviewed overlapped with potential nesting habitat. However, no woodlot plans were examined nor were Small Business plans examined in Boundary and Penticton Forest Districts because of time and budget constraints. Potential nesting sites exist in Vernon Forest District, but no plans were even reviewed there because of higher priority sites for inventory in other Forest Districts. These should be inventoried next year. I estimate 30-35 field days by a crew of two, and 20 office days by two people would be required to inventory about 30 Cutting Permit areas or woodlots. Recommendations are made for more efficient presence/absence inventory methods for next year with first visits in late-April/May followed by nest searches in late-June where species were present.

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