

Williamson's Sapsucker Nest Occupancy and Productivity, Okanagan Project Area, 2007

by

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ABSTRACT

Previously known Williamson's Sapsucker nests were revisited in 2007 to determine occupancy rates, and the numbers of young successfully fledged. For 52 known nesting territories from 1996-2006, only 42% were used for nesting in 2007. For 26 nesting territories used in 2006, 73% were used again for nesting in 2007. The newly discovered nest trees in 2007 followed the same pattern of tree species use noted in the past with 5 of 7 in medium-sized to large western larch, and the others in a trembling aspen, and in a water birch. An average of 3.3 young were raised per nest (N = 20) which was not different from 2006 (3.4 young, N = 15). Tree, snag, CWD and ant nest count plots were conducted in either 2006 or 2007 at each nest where productivity was measured in one or both years. This data will be analyzed when it is merged with the data from other Williamson's Sapsucker projects in B.C. from 2006 and 2007. Mature western larch stands in which Williamson's Sapsucker are nesting and foraging east of Naramata (and in particular those that are undisturbed and can act as ecological benchmarks) should be included in Williamson's Sapsucker Wildlife Habitat Areas if these are no longer in approved cutblocks.

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INTRODUCTION

Williamson's Sapsucker is a species of woodpecker that has been designated as Endangered by the Committee on the Status of Wildlife in Canada (COSEWIC 2005) primarily because of its low population numbers in Canada and the tendency to use old Western Larch stands as nesting habitat which are being altered by timber harvesting and private land clearing.

This project was limited to the known Area of Occupancy of Williamson's Sapsucker within the Okanagan-Shuswap Forest District in the south Okanagan on the east side of the Okanagan Valley (Figure 1). This project area is where a portion of the largest known population in Canada occurs. Another project in 2006 contracted to and carried out independently by other researchers was collecting the same information in the Arrow-Boundary Forest District portion of the population.

The Okanagan Williamson's Sapsucker Project in 2007 was intended to:

- 1) Revisit all previously known Williamson's Sapsucker nest trees in the project area to determine,
 - a) renesting rates in previously used nest trees and nest holes, and
 - b) productivity, i.e., the number of young successfully raised to 80% of fledging age wherever possible,
- 2) Collect tree, snag, Coarse Woody Debris (CWD), and ant nest counts and measurements at nests where productivity information was available.

This is the second year of this project. 2006 field results for the Okanagan portion of the population were summarized by Gyug (2006). Prior existing information on Williamson's Sapsucker had been previously summarized by COSEWIC (2005). This report does not provide an exhaustive analysis of the collected data, nor in-depth interpretations of the data. These will be done in a final Williamson's Sapsucker report for all of B.C. when the results from all projects conducted in 2006 and 2007 are available. Draft reports analyzing and interpreting the 2006 results are available, but these will be updated with this 2007 data to provide final analyses and interpretations incorporating the results from all 2006-2007 Williamson Sapsucker projects in B.C.

Acknowledgements

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METHODS

All 52 previously known Williamson's Sapsucker nest territories in the project area (Figure 2) were revisited at least once between June 10 and June 29, 2007, to determine if they were being used for nesting. Some territories had more than one previously known nest tree, in which case, all previously used nest trees were checked for current occupancy. Nest trees in which there were no active Williamson's Sapsucker nests in 2006 upon the first visit were visited at least twice, if possible, to confirm that they were not being used.

If adults were present, but the previously known nest tree was not occupied, then we would try to discover where they were nesting by following adults or listening for the begging calls of the nestlings. Data collected at each Williamson's Sapsucker nest included: location determined by GPS, tree species, DBH, tree height, nest height, nest hole aspect, Wildlife Tree Decay Class, type of decay, elevation, slope, aspect, topographic situation, soil moisture regime, general characteristics of nesting stand, and enough understorey information to later determine Site Series once the BEC variant had been determined.

Nest holes that were within 15-m of the ground were examined with a nest camera on a 15-m telescoping pole. Nests >15-m height were climbed and then examined with a nest camera. Nest camera observations were recorded on video tape so that they could be re-examined later to confirm the number and sex of young present. After nests were discovered, they were revisited at 3-7 day intervals whenever possible to determine the number and sex of the young that were raised to within 80% of fledging age and would be considered successfully fledged. Fledging age was considered to be about 28 days, therefore 80% of fledging age was about 22 days. Productivity of the nest was the number of young successfully fledged.

After all young had fledged, tree, CWD and ant colony counts and measurements were made at the nests and in the surrounding 16-ha territory (225-m radius) for which productivity was available. These plots were completed in July and August, 2007, using the same methods as in 2006. The only exception was for one nest around which logging was taking place during the nesting period (June-July 2007). The tree and CWD counts that would have been made after logging would not have been representative of the condition of the territory when the territory was established, or while the young were being raised. All measurements were made in accordance with FIA standards (FIA 2006b) which are not repeated here. Additional line-intercept diameters were collected for all CWD >7.5-cm at the intercept. This included both the CWD with large-end-diameters <22.5 cm that were measured in the 4-m x 50-m plots, and all smaller CWD as well. This extra data was collected so that comparisons can be made between the CWD volume estimates derived from the FIA 4-m x 50-m plots to those derived from standard line-intercept methods, and to provide data on the amounts of smaller CWD. Data was entered into a standardized template for submission to SPI. This data is not summarized here because full analysis and interpretation will only be done when the data from all 4 Williamson's Sapsucker projects in B.C. in 2006 are merged.

Data were entered into standardized Excel file templates developed specifically for this project by the Species Inventory (SPI) system in April 2007. Separate files for the observation data and for the tre/CWD/ant data were submitted as part of the deliverables of this project.

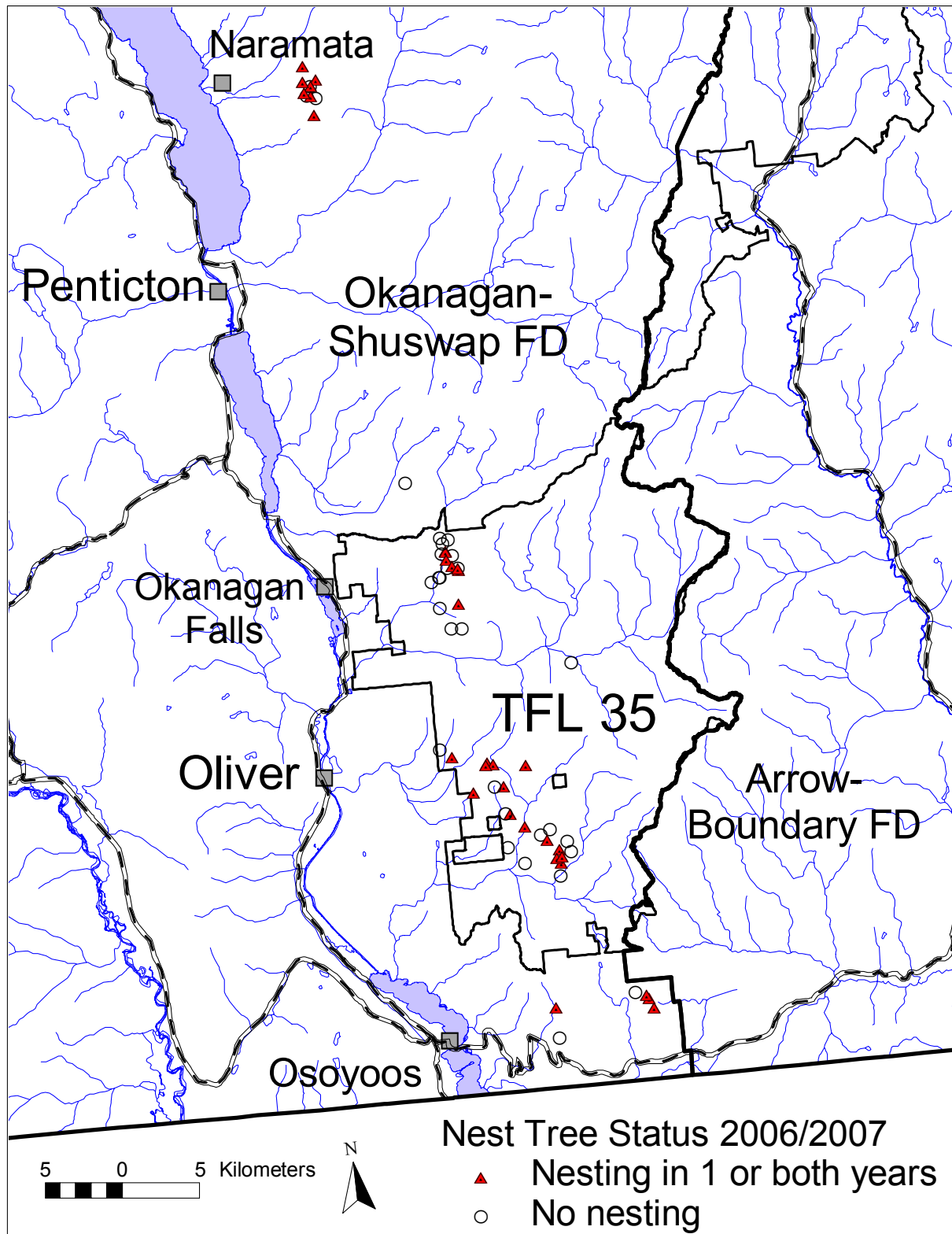


Figure 1. Okanagan Williamson's Sapsucker Project Area, 2006-7, in southern B.C. showing the location of all previously known nesting territories and trees, and nest trees discovered in 2006-7.

INVENTORY RESULTS

Nest Territory and Nest Tree Re-use

Nesting was found in only 22 of the 52 previously known nesting territories in the Okanagan project area (Table 1). Four new nests were found in previously known territories where pairs had nested in different trees in previous years, and in one territory nesting was occurring in a previously unknown tree, but time limitations prevented us from finding the tree. Of the known nest trees from 1996-2005 (n=47), 3 of the trees had fallen over since Williamson's Sapsucker nests were first found in them, and 3 of the trees had been cut down, two during logging operations, and one during road building on private land. None of these territories were occupied by Williamson's Sapsucker in 2006 or in 2007. None of the 48 nest trees known to be standing in 2006 fell over or were cut down between the nesting seasons of 2006 and 2007. Of the 26 nesting territories known to be active in 2006, nesting was in the same tree in 16 (62%), nesting in a new tree in 3 (11.5%), only males were present in 3 (11.5%), and the territories were apparently unoccupied in 4 (15%) cases.

For the 16 nest trees that were used in both 2006 and 2007, nesting was definitely in the same nest hole in 2 cases, possibly in the same hole in 1 case, and the rest appeared to be in different holes, only 9 of which were definitely newly excavated, and 3 of which were definitely not newly excavated.

Nesting tree species followed the same pattern as in the past with 5 of the 7 newly discovered nest trees in large western larches (45-66 cm dbh), with the others being a trembling aspen (28 cm dbh) and a water birch (35 cm dbh).

Other Observations

A small (<1-ha) Wildlife Tree Patch had been placed around Nest tree WN050 to protect it from approved logging, but in 2007 a nearby tree in which no previous nest had been found was used for nesting instead (WNK010). Active logging had been proceeding while nesting was underway with felled trees butting up against the base of the new nest tree. This nest tree was a broken-top western larch with heart rot. One sap tree was found shattered underneath other logging debris. Weyerhaeuser voluntarily stopped logging and skidding in the immediate vicinity until after the young had fledged.

Nest tree WNK004 near Mt. Randolph (also known as the Arawana area east of Naramata) was found to be in an old-growth western larch stand where there has never been any logging or firewood cutting of any sort. This stand is characterized by a high density (50/ha) of very large (≥ 58 cm dbh) western larch and Douglas-fir, and about 100 smaller (23-57 cm dbh) veteran trees per ha, many with fire scars. This area was in an approved cutblock of Weyerhaeuser Company Ltd. that was inventoried in 2006 (Gyug 2006). This cutblock is in an area that has apparently been surrendered as part of their forest licence (Pat Salm, Weyco, Kamloops, pers. comm., May 2007). This site should not be logged since it is one of the very few remaining undisturbed examples of an old-growth western larch stand that has been maintained by a low-intensity fire regime, and is one of the very few places that can provide an example of western larch stand structure in the absence of timber extraction that might guide ecological restoration in this type of stand.

Table 1. Results of visits to all previously known (1996-2006) Williamson's Sapsucker nesting territories in 2007 in the Okanagan project area, and situation of newly discovered nests.

Results	N	% Previously Known Territories (n=52)	% Suitable Territories (n=43)
One of previously known nest trees reoccupied	17	32.7	39.5
No nest in previously known nest tree(s) but Territory still occupied and new nest tree used	5	9.6	11.6
No nest in previously known nest tree(s) but Territory still occupied by male only	5	9.6	11.6
No nest, tree still standing, Territory apparently unoccupied	16	30.8	<u>37.2</u>
No nest, tree still standing, but habitat now considered less suitable because of fire or timber harvesting	3	5.8	
No nest, tree cut down or fallen down, Territory apparently unoccupied	<u>6</u>	<u>11.5</u>	
Total Previously Known Nesting Territories	52	100.0	100.0
Newly discovered nest within previously unknown territory (this was a submitted sighting because no new areas were inventoried in 2007)	1		
Newly discovered nest within previously known territory where nesting had not been previously confirmed	<u>2</u>		
Newly discovered nest within previously known nesting territory	<u>4</u>		
Total New Nests	7		

Nest Productivity and Foraging

Fifteen of the 26 active nests found in the Okanagan project area in 2006 were <15-m in height and could be viewed with a 15-m-pole nest camera, while 21 of the 23 active nests known in 2007 could be accessed either by pole camera or by tree climber. Including nests which were known to fail, the average number of young successfully raised per nest in 2006 was 3.40 ± 0.49 (mean $\pm$ S.E., $n = 15$), and was very similar in 2007 with 3.25 ± 0.34 ($n = 20$) young fledged per nest (Table 2). Two nests (WNK004 and WN226, Table 3) could not be climbed again because of time constraints closer to fledging age, but the nestling counts have been included here even though the nestlings were probably only 12-15 days old.

In 2006, the sex ratio was even at 26:25 (M:F), but in 2007 the sex ratio was skewed towards males (39:12). In the Merritt and Princeton Areas, the sex ratio was skewed toward males in 2006 (28:15, Gyug 2006b) but was skewed towards females in 2007 (29:41, unpublished data). It would appear that sex ratio of the nestlings may vary randomly, and not be a good indicator for any particular environmental condition or population parameter.

Table 2. Nest productivity (number of young successfully raised to at least 22 days of age) and occupancy of Williamson's Sapsucker nests in the Okanagan project area, 2006 and 2007. "Not counted" indicates that young were present in the nest, but they could not be counted because of inaccessibility in 2007, or because the nest was >15-m high in 2006.

N Young Successfully Raised			
Nest Tree	2006	2007	Comments
WN040	Not counted	Not counted	Nest in a high, large side-branch of unclimbable dead Py
WN043	Not counted	Not counted	Nest too high (45 m) in unclimbable Lw at base of cliff
WN050	Not counted	Male only	
WN051	Not counted	3	
WN052	Not counted	See WNK010	Moved to tree WNK010 in 2007
WN203	Not counted	Not occupied	
WN209	Not counted	4	
WN210	4	4	
WN226	Not counted	4	Nestlings only counted at 14 days
WN229	4	3	
WN232	5	5	
WN234	4	4	
WN235	4	Not occupied	
WN236	Failed	See WNK016	Moved to tree WNK016 in 2007
WN305	Failed	Not occupied	
WN309	4	3	
WN314	RNSA nest only	3	
WN326	4	4	
WNK001	6	Failed	6 eggs did not hatch in 2007
WNK002	5	Failed	Died as young nestlings in 2007
WNK003	Failed	Not occupied	
WNK004	Not counted	4	Nestlings only counted at 14 days
WNK005	Not counted	Male only	
WNK006	Not counted	Male only	
WNK007	4	4	
WNK008	3	See WNK015	Nest moved to tree WNK015 in 2007
WNK009	4	Failed	Died as young nestlings in 2007
WNK010	See WN052	4	
WNK011	Male Only	3	
WNK012	Unknown	Unknown	WITS report of nesting May 5-13. No WISA present when nest was examined June 19. Young may have fledged earlier or nest may have failed.
WNK013	Pair present but could not find nest	4	
WNK014	Not occupied	3	Previous nest tree WN042 is in same territory but neither tree was occupied in 2006.
WNK015	See WNK008	4	
WNK016	See WN236	5	

Tree, CWD and Ant Plots

Data was collected at the 10 nests in the Okanagan in 2007 for which nest productivity data was available for the first time. Data for the 11 other nests with 2007 productivity data had already been collected in 2006, and these did not need to be resampled. Full analysis of the tree, CWD and ant density data will be completed when the Okanagan 2007 data is merged with the data from the other Williamson's Sapsucker projects in B.C. and will include all data from 2006 and 2007. This data is not expected to be available from all projects until October, 2007.

DISCUSSION and RECOMMENDATIONS

In the Merritt and Princeton areas, the number of young successfully raised per nest in 2006 was 2.87 ± 0.19 ($n = 15$, Gyug 2006b), but was slightly higher in 2007 with 3.14 ± 0.34 ($n = 22$, unpublished data) young fledged per nest. Over the two-year period, the number of young fledged per successful nest in the Okanagan (4.03) was significantly higher than in the Merritt-Princeton areas (3.20) ($F_{1,62} = 12.5$, $P < 0.001$). When the information is available from 2006 and 2007 from all project areas, the number of young will be compared between all areas.

Complete analysis and interpretation of the data will only be undertaken in conjunction with the data from the five other Williamson's Sapsucker projects in B.C. in 2007 (Kamloops-Lillooet, Okanagan West-Princeton-Merritt, Nicola First Nations, Boundary TSA, and East Kootenay). Therefore the data presented and any interpretations made here should be considered preliminary and final interpretations of this data will only be made when all the data is compiled and analyzed.

Stands with mature western larch timber in the Mt. Randolph area east of Naramata should be included in Wildlife Habitat Area proposals if Weyerhaeuser has given up the rights to the approved cutblocks in this area. Some of these stands represent irreplaceable undisturbed old western larch forests that can serve as benchmarks both for stand structure and for Williamson's Sapsucker habitat.

This project did not inventory any new areas within the Okanagan-Shuswap F.D. portion of the Okanagan Williamson's Sapsucker population, so no new information on locations are available, and therefore no new Wildlife Habitat Areas are being proposed here.

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