

Observations on the Use by of Stubs by Wild Birds, A Ten Year Update

Brian Harris
Habitat Protection Officer
Penticton Forest District
102 Industrial Place
Penticton, B.C.
V2A 7C8
email Brian.Harris@gems4.gov.bc.ca



Brian Harris photo



Les Gyug photo

Abstract

In BC many species of wildlife depend on dead or dying trees and current Worker's Compensation Board Regulations require that such trees be felled. In 1990 in an effort to resolve worker's safety with wildlife habitat needs, Pope and Talbot Ltd. proposed to create a number of tall stumps (3-5m tall) in their logging operations. In the study cutblock, approximately 170 stumps were created. Each spring since they were cut, I monitored the stumps for bird nesting. I counted a total of 86 active nests in stumps in 10 years. I found that 95% of the nesting occurred in the stumps in the clearcut portion of the block, versus 5% in the selectively logged portion. Approximately 16% of the stumps were nested in at least once in 10 years of observations. In this study of lodgepole pine stumps, the greater the diameter of the stump, the more likely it is to be nested in. All nesting occurred in reworked holes, I did not see any new nest holes drilled in these stumps.

I recommend that stumps continue to be a part of the wildlife tree management strategy in any logging operation, irrespective of the species of tree being harvested. Those stumps that are not nested in my provide perching or feeding sites and coarse woody debris when they fall. Stumps should be retained throughout a cutblock, in all slope positions to enable further research. I recommend that 5 stumps per ha be retained, randomly spaced. There is little extra cost and little volume lost, so that stump creation should be encouraged by all forest companies as a part of responsible forest stewardship.

Introduction

In B.C. there are 80-90 wildlife species (woodpeckers, raptors, songbirds, mammals and reptiles) that depend on dead or dying trees for some of their life functions. However, such trees may present a hazard to forestry workers. Worker's Compensation Board Regulations require that all snags (taller than 5 m) or other trees that are hazardous to workers must be felled (WCB Health and Safety Regulations, Sections 60.14 and 60.38). Thus, a workers safety requirement in current forest management is eliminating an important wildlife habitat element.

In 1990, Pope and Talbot Ltd, Midway Division proposed to create a number of tall stumps in a cutblock as an experiment in retaining wildlife trees which would comply with Workers Compensation Board regulations. A feller buncher was used to log the cutblock, but cut a number of trees leaving 3-5 m tall stumps ("stubs"). The forestry worker is protected by the cab during felling and stubs less than 5m are not considered dangerous, so there is no safety concern during harvesting or post harvest silviculture.

I have monitored the birds nesting in the stubs at one site for the 10 years since cutting. Annually, since 1990, I produced a one page inventory report following my field work at this site. In 1995 I reported the results at the Wildlife Tree/Stand level Biodiversity Workshop (Harris, 1995). This current document summarizes the ten years of observations and offers recommendations for the future of stub management.

The Study Area

The study area is a 125 ha cutblock located in the Rendell Creek valley, 60 km southeast of Kelowna, B.C. in the Kettle dry mild Interior Douglas-fir (IDF dm1) biogeoclimatic zone variant (Braumandl, 1992). It was a mountain pine beetle salvage cut, all of the Douglas-fir and western larch were reserved and all stubs were created from lodgepole pine. The reserved trees are unevenly stocked, the southern third, was essentially a clearcut, while the remainder of the block has a mixed stocking of mature and regenerating Douglas-fir and western larch. The prescription called for "up to 8 stubs per ha". Approximately 170 were created, thus the stocking of stubs is about 1.3 per ha. The diameters of the stubs range from 9 to 43 cm dbh, with most between 25 and 35 cm dbh. All stubs were number tagged in 1990 for identification and ease of monitoring.

Observations

In 10 years of monitoring , 86 active nests in stubs were observed in this cutblock:

Year	Number of nests in stubs	Number of bird species nesting in stubs
91	9	3 (HAWO, WEBL, RBNU)
92	4	3 (NOFL, HAWO, bluebird sp.)
93	8	3 (MOBL, TRSW, woodpecker sp.)
94	6	3 (NOFL, MOCH, WEBL)
95	10	5 (NOFL MOBL, TRSW, HAWO, woodpecker sp.)
96	11	5 (NOFL, MOCH, AMKE, AMRO, bluebird sp.)
97	7	2 (NOFL, AMKE)
98	10	3 (NOFL, MOBL, woodpecker sp.)
99	11	2 (NOFL, MOBL)
00	10	2 (NOFL, MOBL)

Bird species	NOFL	MOBL, WEBL	HAWO	TRSW	AMKE	MOCH	AMRO	RBNU
Active nests in 10 years	22	18	4	3	2	2	1	1

The remaining nests were classified as active based on eggs or chicks in the nest or down or fresh woodworking around the entrance holes, but no adults seen. Also 2 red squirrel nests were observed in stub holes.

My most consistent observation is that the stubs that are most often selected for nesting are those in the clearcut (95%) rather than in the selectively logged portion (5%). In this cutblock, the stubs in the selectively logged areas are very seldom chosen for nesting regardless of size or state of decay.

Some stubs were nested in repeatedly (e.g. stub #163 had nests 9 of the 10 years) while others were selected only occasionally. I could not identify a pattern as to which stubs would be used in which year. Approximately 16% of the stubs were nested in at least once in 10 years.

In general, the greater the diameter of the stub, the more likely it is to be nested in.

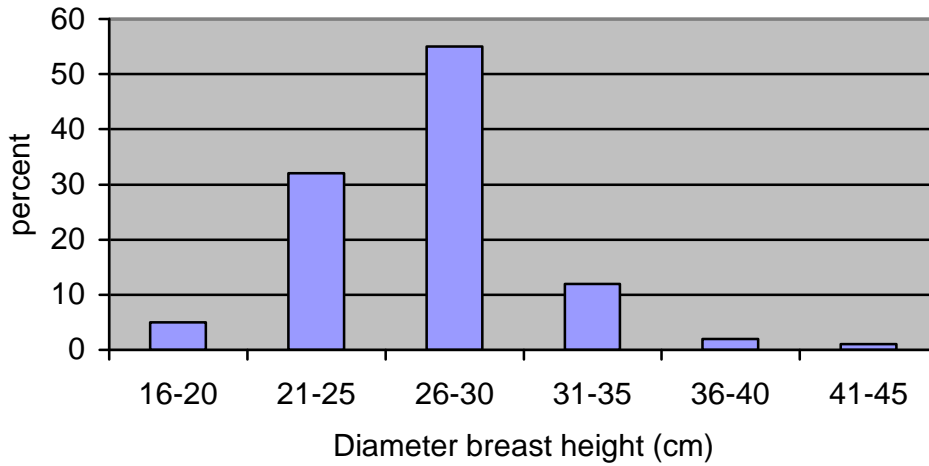


Figure 1. Percent of stubs available, by diameter class

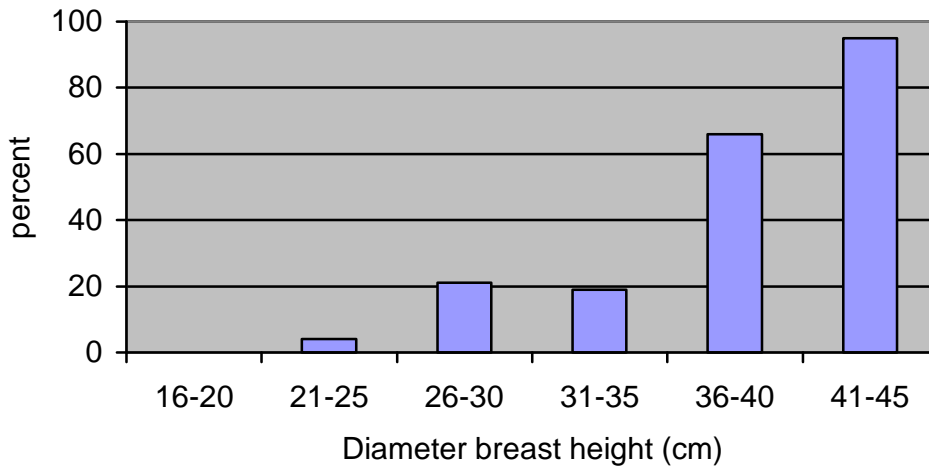


Figure 2. Percent of available stubs with at least one active nest.

All nesting occurred in “reworked” holes, I don’t believe that any new nest holes were drilled in the 10 years since the stubs were cut.

The stubs that were sound at the time of cutting appear to still be sound, although after 10 years, the roots of many stubs are beginning to rot and while they may still be upright, some are no longer stable. This was not unexpected, a local rancher stated that when used to support a fence, he expects to have to replace a rooted lodgepole pine tree cut at fence post height after 15 years. Stubs of trees species with greater resistance to decay, such as larch or cedar, can be expected to be more long lived.

On two occasions I observed “condo” nesting, that is two species nesting in different holes in the same stub (northern flicker and tree swallow, northern flicker and mountain chickadee).

The greatest diversity of nesting bird species (5) occurred in 1995 and 1996, while for 1998, 1999 and 2000, I only positively identified northern flickers and bluebirds nesting in the stubs.

Conclusions

Wild birds began nesting in stubs in this cutblock less than 6 months after logging was completed, and some species have continued to nest in stubs for the 10 years since.

Stubs in the clearcut portion of the block appear to be preferred for nesting over those in the selectively logged area. Possibly potential predators like weasels and snakes have no cover from other predators in the clearcut, thus the nesting birds feel more secure.

Lodgepole pine stubs must have some basal defect such as scars, rot or existing woodpecker excavation in order to be acceptable nesting substrate to cavity nesters. Trees with the appropriate characteristics must be scarce because even after 10 years, only about 15% of the stubs have been used for nesting. However, since creating stubs involves such little extra cost and effort (Harris, 1995 reported the loss of .015% of the volume for the cutblock and additional cost of \$.01 per cubic metre) that the lack of precise selection criteria should not argue against stubbing trees throughout a cutblock.

Stubs less than 20cm dbh are very seldom selected for nesting (this conclusion is based on observations of many stubs over a number of sites, although I have a record of a chickadee nest in an 18cm stub). In this study, the larger stubs (36-45cm dbh) were more likely to be nested in, even though the smaller sizes were much more available.

Recommendations

Stubs should continue to be a part of the wildlife tree management strategy in any logging operation. Stubs should be created out of whatever tree species are being harvested. The records from an examination of stubs of a variety of tree species (Bennett, 1992) show that while certain tree species are preferred, stubs of any tree species can be utilized for cavity nesting or foraging. Stubs should be selected preferably from trees with defects in the lower part of the bole (particularly existing holes). For nesting this appears to be very important (in lodgepole pine at least).

However, irrespective of bird use, stubs which fall over are not “wasted”. A stub can continue to provide habitat when it is no longer upright, and those chosen with wildlife use characteristics such as obvious defects or nest holes have little timber value. From observing many logging operations, it is apparent that there are a large number of lower

boles of trees bucked off at the landing because they are rotten and/or otherwise unsuitable for lumber, which are then burned in the cull pile. This wood would be better left scattered as coarse woody debris in the block and, better yet, retained as a stub, to potentially provide perching and nesting sites and then coarse woody debris when it falls.

Stubs should be retained throughout the cutblock. It is clear from this research that stubs in the middle of a clearcut are not only used, but apparently preferred to those in selective logging. However, this is only one study. More observations are needed, thus stubs must be available in all silviculture systems, all slope positions, all location in the block etc. for further research.

Stubs should be created at a density of about 5 per ha, but randomly spaced (i.e. as both groups and single stems). An observation from another study suggested that birds preferred nesting in stubs where the densities approached 30 per ha (Bennett, 1994). Those that are not suitable for nesting may be used for feeding, perching, courtship or contribute to coarse woody debris when they fall.

Stubs have wildlife habitat value and there is minimal added expense or revenue loss in creating them, so that a good case can be made for encouraging forest companies to create stubs as a part of responsible forest stewardship. Further research should be conducted to determine the most productive and cost effective stub creation techniques for various biogeoclimatic zones and silviculture systems.

Abbreviations for Bird Species

AMKE – American kestrel

HAWO – Hairy woodpecker

MOCH – Mountain chickadee

RBNU – red-breasted nuthatch

WEBL – Western bluebird

AMRO – American robin

MOBL – Mountain bluebird

NOFL – Northern flicker

TRSW – Tree swallow

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