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WHITE-HEADED WOODPECKERS SUCCESSFULLY FLEDGE YOUNG AFTER SNAG CONTAINING THE NEST CAVITY WAS FELLED FOR FIREWOOD

Jeffrey M. Kozma
Yakama Nation
Timber, Fish and Wildlife / Fisheries Department
P.O. Box 151
Toppenish, Washington 98948
kozj@yakamafish-nsn.gov

The White-headed Woodpecker (*Picoides albolarvatus*) is a weak primary excavator that excavates cavities most frequently in standing snags (Milne and Hejl 1989, Garret et al. 1996, Buchanan et al. 2003, Kozma 2009). In Washington, the White-headed Woodpecker occurs primarily along the east-slope of the Cascades and other montane areas where ponderosa pine (*Pinus ponderosa*) is the dominant tree species. The White-headed Woodpecker is listed as a species of concern in Washington (Washington Department of Fish and Wildlife 2009) primarily due to loss of habitat from timber harvest and decades of effective fire suppression. Fire suppression has lead to forests having higher stem densities, smaller diameter and younger trees, and a greater abundance of shade tolerant tree species in the understory (Douglas-fir [*Pseudotsuga menziesii*] and grand fir [*Abies grandis*]) (Agee 1996, Hessburg and Agee 2003, Keeling et al. 2006). This differs from fire-maintained ponderosa pine forests, which were park-like and described as having widely spaced (i.e., 50 trees/ha), large–diameter trees (60-70 cm diameter at breast height; Agee 1996, Harrod et al. 1999). Because of the continued threat of habitat loss and the lack of information regarding the breeding ecology of the White-headed Woodpecker in Washington, I began a long-term study in 2003 to examine nest-site selection and reproductive success in the White-headed Woodpecker in Yakima, Kittitas, and Klickitat counties (see Kozma 2009 for details of the study area and methods).

On 2 June 2009, during the course of my study, I found an active White-headed Woodpecker nest cavity containing four eggs, located in a Douglas-fir snag in the Okanogan-Wenatchee National Forest, Yakima County. I inspected the cavity with a TreeTop Peeper IV elevated video inspection system (Sandpiper Technologies, Inc.; Kozma 2011). On 5 June, this nest contained one egg and three recently hatched nestlings as determined by the presence of eggshells on the cavity floor (adults usually remove the eggshells within one day of hatching; JMK personal observation). When I went to inspect the nest on 12 June, I found that the entire snag had been cut down for firewood by a person with a chainsaw. The snag had been delimbed and cut into approximately 45–cm sections. The cavity entrance was not visible and was presumed to be facing the ground. Both male and female White-headed Woodpeckers were carrying food and repeatedly calling while flying back and forth between the trees surrounding the fallen

snag. Because the young were only 7 days old, I assumed they must have perished when the snag hit the ground or perhaps the cavity had been cut open.

On 16 June, I returned to this area to check an active Northern Flicker (*Colaptes auratus*) nest located approximately 90 m downslope from the White-headed Woodpecker snag that had been felled. After inspecting the nest, I heard drumming coming from the area of the White-headed Woodpecker snag. I assumed it was a White-headed Woodpecker drumming, but I was unsure as to why they would still be exhibiting behaviors that indicated an active nest (White-headed Woodpeckers often drum in response to a human near an active nest; JMK personal observation). I proceeded to the area where the snag had been standing and found that the individual who felled the snag had completely cut around the section of the snag containing the cavity and had placed this section onto a second portion of the cut snag that was positioned on the remaining stump of the snag (Fig. 1).

As I approached the reconstructed snag, the male White-headed Woodpecker exited the cavity. I inspected the nest and found two, 11-day-old, male nestlings (determined by extensive red feather patches on the top of their heads) alive and aggressively begging for food. I assumed that the third nestling most likely died when the snag fell and was removed by one of the adult birds, but I did not observe the dead chick in the vicinity of the nest snag. I continued to observe the nest from about 60 m away and later saw the adult female bring food to the nest and enter the cavity to feed the young. It was apparent that both adults were actively feeding the young, even though the cavity opening was facing 180 degrees from its previous orientation and was approximately 2 m closer to the ground than the original cavity location. I checked the nest again on 22 June and both adult woodpeckers were entering the cavity to feed the two young.

Figure 1. White-headed Woodpecker nest cavity placed onto a second portion of the cut snag after the snag had been felled for firewood on the Okanogan-Wenatchee National Forest, Yakima County, Washington, 2009.

On 24 June, I checked the flicker nest located downslope from the White-headed Woodpecker nest snag and

found that the cavity had been ripped open and the nest contents had been depredated by a black bear (*Ursus americanus*), a frequent occurrence at flicker cavities in my study area (Kozma 2011). Because the White-headed Woodpecker nest cavity was now within 1.5 meters of the ground, I was concerned that the bear may have found that cavity too. I inspected the White-headed Woodpecker nest cavity and found it was undisturbed and still contained the two male chicks, now 19 days old. I checked the nest again on 29 June and the two chicks were still present, now 24 days old and begging loudly with one chick having its head completely outside the cavity entrance. I returned on 1 July to find that both chicks had fledged as determined by avian feces in the cavity and no sign of predation. Later that day, I found one adult White-headed Woodpecker giving alarm calls about 200 m from the nest and assumed that at least one fledgling was present.

Older woodpecker nestlings are known for having loud begging calls (Kilham 1977, Briskie et al. 1999) particularly after day 24 of the nesting period (Tozer et al. 2009). When the White-headed Woodpecker nest snag was cut down, it was during day 25 of the nesting period. This was determined by back calculating to a first egg laid date of 20 May based on a mean 13-day incubation period (12.3 days, n = 13 nests this study and 14 days from Garrett et al. [1996]) and assuming that one egg was laid per day with incubation beginning on the day the last egg was laid (Garrett et al. 1996). Thus, when the section of the snag containing the cavity was reassembled, the young were old enough to be producing loud begging calls. This could have provided a strong stimulus to the adult woodpeckers to continue feeding the young in a cavity that was now facing 180 degrees from its previous orientation and that was considerably lower and closer to the ground.

Firewood cutting is allowed on the Okanogan-Wenatchee National Forest with an approved permit (Wenatchee National Forest 2009). In addition, individuals may cut standing snags as long as there are no visible cavities (R. Shepard, Okanogan-Wenatchee National Forest, personal communication). Because this snag contained a White-headed Woodpecker nest, it should not have been felled, particularly since the cavity (only 3.5 m above the ground) was easily visible. Incidents such as this will hopefully encourage the Okanogan-Wenatchee National Forest to modify their snag management and firewood harvesting policies.

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