

A Technical Review of the Management Plan on Craig Mountain and its Effects on the Pileated

Woodpecker By Hallie Morris

This paper is a technical review of the effects of management on Craig Mountain on the pileated woodpecker, *Dryocopus pileatus*, and the species of trees it relies on. Craig Mountain Wildlife Management Area is an Idaho wildlife management area located in southern Lewiston's Nez Perce County along the Snake River and is approximately 115,000 acres. Craig Mountain has been managed by the Idaho Department of Fish and Game (IDFG) for over 20 years (Swearingen 2015) and has either implemented or will implement several forestry management techniques including mastication, logging/thinning, prescribed burning, and planting (Barrett 2014). Successful forestry management guarantees the preservation, restoration, and climatically enhanced resilience of different ecosystems while also ensuring there is enough necessary habitat for wildlife where they can thrive.

The mission of the Craig Mountain Wildlife Management Area (CMWMA) is aligned with IDFG's mission. This mission statement is to preserve and improve animal populations and habitats, to compensate for habitat losses brought on by the development and flooding of Dworshak Reservoir, and to allow the general people to make compatible use of these wildlife resources. (Barrett 2014). This mission will help the wildlife on Craig Mountain by ensuring there is enough resources and habitat left for wildlife and they will be protected and managed within the department's ability.

Native to North America, the pileated woodpecker is a sizable bird that is primarily black in color with a red, black, and white head and inhabits the majority of North America's forested areas (Cassirer 1995). They roost in trees, the hole used for roosting may resemble a nest hole, and can be found in live and dead trees. Roost holes can be found anywhere in a tree, sometimes

even at heights of sixty or seventy feet (Hoyt 1957). As a result of intensive timber management, stands are frequently harvested before trees reach proportions suitable for pileated woodpecker nests. It remains important for these birds to have suitable trees left for them because they construct nest chambers that are later used by other birds and small mammals. Additionally, these woodpeckers clear out and consume pest forest insects in these nest holes so the pileated woodpecker plays a crucial ecological role in wooded areas (Bull 1993)(Bull 1987)(McClelland and McClelland 1999)(O'Daniels et al. 2017).

The pileated woodpecker will use many types of trees but two the species relies on are Ponderosa pine, *Pinus ponderosa*, and Douglas fir, *Pseudotsuga menziesii*. Ponderosa pine is a large pine tree species with a wide range of habitats and is native to mountainous areas of western North America. The optimal soil and growing conditions for ponderosa pine are full sun and deep, wet, well-drained soil, though it may grow in a variety of soil types. Furthermore, about 453 m or 38 frost-free days are the environmental intervals in elevation at which ponderosa pine populations exhibit habitat specialization (Graham and Jain. 2005). Douglas fir prefers full light, however, it can take some shade. These trees prefer fertile and well-drained soils that are wet (Douglas 2023).

The pileated woodpecker relies on ponderosa pine and Douglas fir for many reasons. Pileated woodpeckers like to use these trees to roost as these trees tend to have large nest cavities created by other species. In addition, as mentioned earlier, they tend to choose to be high up in the canopy which these trees can offer as well as all the food they could ask for with tree insects (invasive and not)(Bevis and Martin 1999)(Conner and Adkisson. 1997)(O'Daniels et al. 2017).

Although people have a general understanding of the relationship between these trees and this woodpecker there are still gaps in their information. These gaps can stem from a lack of

information on these birds as they can be hard to find at times or when radio-collared birds go missing (Bevis and Martin 1999). Negative and positive impacts of forest management on the pileated woodpecker and its preferred tree species vary due to different variables.

The first management technique being reviewed from the management plan is mastication, mastication is an efficient method for removing surface fuels in forest environments that are prone to fire. A study done in southwest Oregon oak woodland and chaparral on bird populations after mastication fuel treatments found that some species of birds were less abundant due to the loss of shrubs (Seavy 2008). With this information in mind, it can be assumed pileated woodpeckers might decline slightly as they drill holes in trees and huge shrubs to mark their territory, prepare nesting locations, and call to potential mates (Kane et al. 2010)(Kilham 1959).

The second management technique is logging, logging is the practice of harvesting and moving trees. While logging of these tree species doesn't directly kill pilates it has a big impact on the tree species and consequently these birds. A study done in Oregon's Ochoco National Forest in 1961 showed the size and degree of soil compaction in the root zone due to cut trees and large equipment had a negative correlation with the growth of remaining young ponderosa pine trees. Over a 16-year period, trees with moderate impacts showed a 6 percent reduction in growth rate, and those with severe impacts showed a 12 percent reduction (Froehlich 1979). The loss and reduction of young trees sprouting and making it out of the juvenile stage leaves the woodpeckers with less habitat.

The third management technique is prescribed burning, which is a fire started deliberately with the objective of managing forests, suppressing fires, farming, restoring prairies, or reducing greenhouse gas emissions. Overall prescribed fire seems to be beneficial to forest stands as it makes way for new growth and increases tree resistance to disturbance. On average birds seemed

to be relatively unaffected provided the burns were not carried out during mating/nesting season (Bull 2005)(Dickson et al. 2009)(Thies et al. 2005). Additionally, a study done in Prescott National Forest in Arizona showed that the time of year when fire or logging is done matters. In this study, granivores were more prevalent in the fall and winter on burned and clear-cut landscapes; species composition varied between burned and unburned sites. Insectivorous species dominated the community composition as most granivore assemblages left by spring, reducing overall levels of abundance (Blake 1982). Another study found that when concerning ponderosa pine, fuel treatments, which eliminate small diameter trees, may be advantageous for lowering the risk of crown fire in ponderosa pine locations (Pollet and Omi 2002)(Covert-Bratland et al. 2010).

The fourth and final forest management technique is planting which occurs to help revive/improve ecosystem health. An increased or healthy amount of ponderosa pine, douglas fir, and other species remains important to pileated woodpeckers for food, cover from prey, roosting, etc. It is shown that replanting when logging or severe wildfires occur is beneficial to the ecosystem as a whole (Bevis et al. 1999)(Bull 1993).

People have been managing land for thousands of years, however, we still don't know how everything works together and that needs to be taken into account. Some things to increase understanding about Craig Mountain and pileated woodpeckers would be to track their home ranges using radio collars. However, these can become expensive as birds are often preyed upon or die from natural causes. Other things would be to track what trees and cavities are used every year and try to replicate these conditions to increase their populations.

Reviewing the management plan and data from other sources we can conclude what management techniques would be the most beneficial to the pileated woodpecker. These forestry

management techniques in order of least disturbance to the woodpeckers would be planting (especially in riparian areas), mastication, and burning ponderosa pine and Douglas fir every 10-25 years in the fall or winter times (Barrett 2014)(Blake 1982)(Swearingen 2015).

Although we have options that would benefit our targeted species there are management practices that would help Craig Mountains habitat and other wildlife as well. IDFG could research introducing or watching different fungi that are present in Craig Mountain that benefit bird species. A study done in the Olympic Peninsula in Washington showed that pileated woodpeckers might be relying on certain fungi like *Oligoporus sericeomollis*, in Western Red Cedar, another tree the woodpeckers frequent. The fungus causes rot in these trees though it takes a long time. As stated earlier, pileated woodpeckers frequently perch in lengthy tree cavities with numerous entrances that allow them to flee potential predators. For pileated woodpeckers, the decay columns that *O. sericeomollis* produces may be the ideal roosting environment in western redcedar. Due to the fact these trees survive in the landscape and offer prospective roost sites for pileated woodpeckers for a much longer period of time than other tree species in western Washington, large western redcedars that have heart rot before they die may be especially crucial to the species (Parks et al. 2007).

The pileated woodpecker relies on ponderosa pine and Douglas fir, however, using some of the forest management practices would benefit all of these species more over time even if it means losing a few now and then.

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