As forest management increasingly aims to integrate conservation goals with production priorities, there is a need to better understand ecosystem function in different forest stages. Washington State Department of Natural Resources (DNR) has initiated a large-scale study in the Olympic Experimental State Forest (OESF) monitoring habitat use by forest songbirds. This study seeks to assess bird occupancy and response to forest management by monitoring ten indicator bird species in four stages of forest development. Acoustic recording units were deployed in 2020 to survey the forest soundscape in early seral, competitive exclusion, thinned, and mature forest areas. I analyzed survey spectrograms to detect presence of indicator bird species, aircraft noise, and rain events. I reviewed locally relevant literature to identify habitat associations for two birds within the study: Pacific-slope flycatcher and Orange-crowned warbler. I used survey data to model occupancy for these species using forest stage, Julian day, aircraft noise, and rain events as covariates. A goal of this work was to find out whether these species adhere to expected habitat types in the OESF and identify variables affecting occupancy and detection. Model results estimated forest stage as a driver of occupancy. Aircraft events were positively correlated with detection, warranting further investigation into the impact of anthropogenic noise on songbirds. Rain was negatively correlated with detection. Understanding patterns in bird presence across various levels of forest stage in the OESF may inform DNR and other land managers in the development of forest management strategies that benefit long term ecosystem health, forest resources, and habitat conservation.