**Effects of Survey Conditions on Dusky Grouse Counts in Montana

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Dusky grouse (*Dendragapus obscurus*) are a species of upland game bird for which monitoring methods are still being developed. Understanding factors that influence the detections of grouse is crucial for developing survey protocols that maximize observability of grouse and provide unbiased estimates of population size and trends. Our objective was to explore relationships between grouse counts and survey conditions to inform future statewide survey protocols. We conducted multiple 4-minute point counts during the spring mating season from late April–early June 2020. We explored the effect of wind speed, temperature, cloud cover, precipitation, minutes since sunrise, and date on the maximum number of dusky grouse counted at each site using generalized linear models and information theory. The number of grouse observed declined with wind speed (? = -0.06 ± 0.04SE), and increased with ambient temperature (? = 0.02 ± 0.01SE). The number of grouse counted for date and minutes since sunrise had a positive quadratic relationship, with peak counts occurring from May 5 th – May 20 th , and between 100- 150 minutes post sunrise. Higher counts were observed when cloud cover was low, and snow had the strongest negative impact compared to other forms of precipitation. These results provide valuable insight for identifying favorable conditions for surveying dusky grouse, which could lead to effective management decisions for this species.