Assessing Elk Group Size and Distributional Responses to Wolves in Winter[TWS]

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As the gray wolf (*Canis lupus*) population expands outward from Yellowstone National Park, wolves may potentially induce changes in behavior of wintering elk populations. Certain anti-predator responses to wolves, such as changes in mean group size and animal distribution, are of interest due to their relationship to resource management policies, procedures, and objectives on private and public lands that compose wintering areas. Specifically this research attempts to quantify the effects of a wolf pack on mean elk group size and distribution on a winter range. Ground-based telemetry and tracking techniques were used to estimate wolf movements in the area and resulted in 267 wolf locations and 23 wolf kill locations in the first of what will be two field seasons of data collection. Data on elk group size and distribution was gathered via 257 surveys of km^2 units around wolf locations, wolf kill locations, and in areas without recent wolf presence. To analyze these data, hypotheses of elk group size and distributional responses to predation pressure are being constructed in the form of statistical models grouped into 3 categories for comparison using Akaike's Information Criterion: (1) no response, (2) behavioral response independent of frequency of exposure to wolves (typical prey response), and (3) behavioral response dependent on frequency of exposure to wolves (risk- allocation). We discuss results of preliminary analyses in the context of wolf and elk management and potential implications on population dynamics of these two species.