Habitat Requirements and Management Needs for the Endangered Sage-Grouse in Alberta

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The mixed grass prairie of southeastern Alberta and southwestern Saskatchewan supports the northern most population of Greater Sage-Grouse. Within the currently occupied habitat, the endangered Canadian Greater Sage-Grouse population has declined by 66 to 92% over the last 30 years. Of 35 known mating grounds (leks) in this Alberta, only eight are currently used. We will present resource selection function models at several spatial scales and show how these models were used to develop probability maps to predict the occurrence of potentially unknown lek sites. We also will present models identifying how changes in habitat and increased human developments may affect the viability of leks. Poor nest success and chick survival have been shown to limit population growth. We will present models identifying key nesting and brood rearing areas, illustrating how habitat could be protected and enhanced to improve productivity. Models presented will include covariates drawn from recently created air photo-interpreted sagebrush maps, litter and forb biomass models generated from Landsat TM imagery, range ecosite classification maps, and a digital elevation model. Road developments and density of energy developments (well sites and pipelines) permit assessment of the impact of human use features on lek activity. These models help to highlight specific habitat management needs for Sage-Grouse in Alberta and will form the bases of future management initiatives.