# Standardized Broad-Scale Mapping of Sage Grouse Habitat Suitability Across Montana and the Dakotas

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Efforts to conserve imperiled sagebrush (*Artemisia spp.)* ecosystems and associated organismsoften prioritize population characteristics of landscape species like the greater sage-grouse (*Centrocercus urophasianus*). Distribution, and spatial juxtaposition of environments supporting remaining sage-grouse populations are key to delineating habitats to inform management decisions. Sage-grouse exhibit seasonal movements and use habitats that are heterogeneously distributed across 11 states, so standardized sage-grouse habitat maps are needed across large extents for multiple phenological stages. Our primary goal was to map seasonal habitats of sage-grouse relevant to management across Montana and the Dakotas using methods complementary to past and current efforts. We compiled a dataset from 16 sage-grouse research projects collected from 2001–2021, ranging from single-season VHF studies to year- round GPS studies. We fitted patch-scale resource selection functions based on correspondence between heavy use areas and 8 coarse-scale landscape conditions. We generated habitat suitability maps for conventional sage-grouse seasons for comparison to models of more detailed behavior-seasons. We frame our preliminary results in context of other mapping projects including local studies that evaluate habitat relationships at finer scales and a range- wide project that includes Montana and the Dakotas.