



## Relationship of Ecological Site Plant Community Structure to Shrubsteppe Songbirds

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Vegetation structure is the horizontal and vertical space occupied by different plants in a community and provides critical habitats for wildlife such as shrubsteppe songbirds. Evaluation of plant community structure within ecological sites (management units used by land agencies to assess rangeland production potential and health) and their association with shrubsteppe songbird populations have not been well defined. In 2006 and 2007, we quantified plant community structure using a variety of methods and tested its association with shrubsteppe songbird density and occurrence within upland ecological sites at and near Browns Park National Wildlife Refuge in Colorado. Brewer's sparrows (*Spizella breweri*) are commonly associated with sagebrush (*Artemisia tridentata*) presence, but on ecological sites at Browns Park Brewer's densities were more closely related to plant community structure than shrub species composition; densities were greater (2.5 birds/ha) on a Saline Lowland site with taller vegetation and larger gaps between plant bases than other sites. Sage sparrow (*Amphispiza belli*) densities were greater (0.5 birds/ha) on a Shallow Sandy site with higher sagebrush cover as well as larger gaps between plant bases than other sites. Vesper sparrow (*Pooecetes gramineus*) densities, a typical grassland species, did not differ significantly by ecological site but were positively correlated to shrub cover and large shrub canopy gaps. Results show that ecological site plant community structure has relevance to shrubsteppe songbird populations in that measuring structure of the plant community can enhance management options to favor multiple songbird species.

2009. 62nd Society for Range Management Annual Meeting. Paper No. 90-3.