

EFFECTS OF RESIDENTIAL DEVELOPMENT ON AVIAN COMMUNITIES AND INDIVIDUAL SPECIES IN QUAKing ASPEN: THE IMPORTANCE OF HABITAT CONSERVATION ON PRIVATE AND PUBLIC LAND

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It is a generally held tenet that habitat fragmentation and loss are primary threats to biodiversity. However, little is known about how residential development affects ecosystems, avian populations or individual species. Quaking aspen (*Populus tremuloides*), a species in decline, covers only 1 percent of the forested landscape in the Rocky Mountains but is nevertheless an important habitat for avian biodiversity. We studied the effects of low- and medium-density housing (< 2 houses/ ha and 2-5 houses/ ha, respectively), termed residential development, on bird communities and species using aspen habitat during the breeding season. Overall, residential development affected bird community composition at fine scales (250 -500 m spatial extents). These effects were best explained by multiple regression models containing variables from multiple spatial scales. Based on community composition results, patch size and percent aspen in the landscape were the habitat variables most influential to bird habitat selection. However, analysis of individual species abundances indicated that residential development had direct effects on individual species' abundances. This study's most important contribution to conservation efforts was the clear identification of scales relevant to land managers and residential development. These results suggest that future conservation efforts should focus on both private and public lands.