ABSTRACT

TITLE:	The Effects of Sudden Aspen Decline on Avian Biodiversity in Southwestern Colorado
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ABSTRACT: Aspen (Populus tremuloides) stands in southwestern Colorado have recently experienced sudden aspen decline (SAD), which is a unique form of large-scale aspen mortality that is associated with the rapid loss of entire aspen stands. Aspen forests are biologically diverse, and studies on bird populations indicate a comparatively high diversity and abundance associated with aspen habitat. Yet, no studies are currently known that evaluate avian community changes associated with SAD-affected aspen forests. Therefore, from early June to early July 2009, we conducted avian surveys and evaluated stand structure and forest understory in aspen stands located in the Dolores Ranger District of the San Juan National Forest. We classified different levels of SAD that included: 1) Low SAD (0-29%), 2) moderate SAD (30-70%), and 3) high SAD (71-100%). We used ordination analysis to compare avian species composition and abundance amongst different levels of SAD, measured species richness and diversity, and performed an indicator species analysis to determine species that were particular indicators for different SAD levels. Patterns in the avian community produced better discrimination in ordination analysis between low and high SAD stands. Avian species richness was greater in stands with high SAD than in stands with low SAD, and diversity was greater in stands with both moderate and high SAD than in low SAD stands. There was a greater number (4 of 5) of indicator species identified for the high SAD category. Our data suggests that the changes in avian community structure associated with SAD are distinct between aspen forest with low and high SAD, and that stands experiencing high SAD initially favor avian biodiversity.