

# COMPARISON OF AVIAN SPECIES DIVERSITY AND DENSITIES ON NON-MINED AND RECLAIMED SURFACE-MINED LAND IN EAST-CENTRAL TEXAS

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Surface mining often changes the native landscape and vegetation of an area. Reclamation is used to counter this change, with the goal of restoring the land to its original pre-mined state. The process of reclamation creates early successional-stage lands, such as grasslands, shrublands, and wetlands, attracting new plant and animal species to the area. I compared avian species density (number of individuals/ha), diversity ( $H'$ ), and richness (number of species/ha) on reclaimed and non-mined lands at TXU's Big Brown Mine in Fairfield, Texas. I also compared my results to those of a previous study conducted 25 years earlier. Avian counts were conducted using a fixed-radius point-count method on 240 points placed in four different vegetation types and in four land-age groups (time since being reclaimed). Vegetation was measured both locally, and at a landscape level. Overall bird species density did not exhibit a clear relationship on non-mined versus reclaimed land. Overall bird species diversity was greater on non-mined lands, whereas overall species richness was greater on reclaimed lands. My results demonstrated a lower mean/point bird density and higher mean/point bird diversity than were found 25 years earlier. Different nesting guilds occurred on the reclaimed lands than occurred on the non-mined lands. Results suggested different species were attracted to the several successional stages of reclaimed lands over the non-mined lands, which consisted of climax vegetation. The different successional stages of reclaimed lands increased overall diversity and richness of the landscape as a whole. Five bird species of conservation concern were observed in the study, all of which occurred on reclaimed land. Four of the five species primarily occurred on reclaimed lands. Future land management should include conserving different successional-stage lands to increase overall biotic diversity and richness of mined land, preserving reclaimed habitat for species of concern, and educating future private landowners on the importance of maintaining vegetative and bird species diversity.

*Masters Thesis  
Wildlife and Fisheries Sciences  
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