

FEATURE ARTICLES

CERULEAN WARBLER ABUNDANCE AND OCCURRENCE RELATIVE TO LARGE-SCALE EDGE AND HABITAT CHARACTERISTICS

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Abstract. We examined Cerulean Warbler (*Dendroica cerulea*) abundance and occurrence in southwestern West Virginia, where the coal-mining technique of mountaintop removal mining–valley fill converts large contiguous tracts of deciduous forest to forest patches surrounded by early successional habitats. Our study objectives were to quantify abundance and occurrence of Cerulean Warblers relative to (1) distance from the edge of extensive reclaimed grasslands and (2) habitat structure and landscape characteristics. Cerulean Warbler abundance increased with distance from the edge and edge effects extended 340 m into the forest. Percent occurrence did not vary with distance from mine edge, suggesting a degree of tolerance to the extensive edge occurring at the interface of forest and reclaimed lands. Abundance and occurrence were greater on ridges and midslopes than in bottomlands; consequently, disturbances such as mountaintop mining in which ridges are removed may have a greater impact on populations compared to other sources of fragmentation where ridges are not disturbed. Models based on the information-theoretic approach indicated that Cerulean Warblers were more likely to be present in productive sites on northwest to southeast facing slopes, upper slope positions (midslope to ridgetop), and forests with low sapling density. Cerulean Warbler abundance was positively associated with more productive sites, higher snag density, large blocks of mature deciduous forest, and low amounts of edge in the landscape. In addition to outright loss of forested habitat, mountaintop mining–valley fill alters the spatial configuration of forested habitats, creating edge and area effects that negatively affect Cerulean Warbler abundance and occurrence in the reclaimed mine landscape.

Key words: abundance, Cerulean Warbler, *Dendroica cerulea*, edge effects, fragmentation, mountaintop mining, occurrence.