

CERULEAN WARBLER HABITAT USE IN AN OAK-NORTHERN HARDWOODS TRANSITION ZONE: IMPLICATIONS FOR MANAGEMENT

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The cerulean warbler, *Dendroica cerulea*, is a small songbird of deciduous forest canopy found locally through much of eastern North America. Since 1966, populations have declined range-wide by over 4% per yr, resulting in heightened conservation concern and a petition to list the species as “threatened” under the Endangered Species Act. Conservation planning for regional populations of cerulean warblers is hampered by a lack of knowledge of population status, habitat affinities, area requirements, and threats. Studies have indicated the species requires large tracts of intact mature forest, leading some to implicate even-aged timber management as a threat to the species’ survival. In 2003 we initiated a study to identify and quantify habitat use by cerulean warblers in northwestern Pennsylvania in a zone of transition between oak-dominated forests to the south and northern (Allegheny) hardwoods to the north; and to assess the impacts on the birds of a shelterwood-prescribed burn treatment increasingly used in the region to regenerate oak forests. We used tape-playback methods to survey for ceruleans at 408 sampling points across a range of forest types and topographic positions. We found no ceruleans in Allegheny hardwoods (cherry-maple), the dominant forest type in the region; all ceruleans occurred in mixed oak stands (n = 48) or on sycamore-dominated river islands (n = 2). Although ceruleans were detected disproportionately on lower slopes and bottoms, this likely reflects the non-random distribution of oaks in the region. Eight of the 65 stands surveyed had been shelterwood-cut; these stands had both a significantly greater probability of having ceruleans present (P = 0.028), and a higher density of ceruleans when present (0.42 vs 0.71 birds/point; P = 0.05). A possible explanation is that shelterwood cuts simulate the heterogeneous canopy structure of the uneven-aged mature forests preferred by the warbler. While the results of this pilot study are suggestive, our sample sizes for shelterwood stands are small. Future work will examine in greater depth the impacts of shelterwoods on cerulean abundance and nesting success.

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