Effects of Habitat Change along Breeding Bird Survey Routes in the Central Appalachians on Cerulean Warbler Population

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Abstract: The cerulean warbler *(Dendroica cerulea)* is one of the highest priority bird species in the eastern United States because populations have declined 4.3% annually during 1966–2005 based on Breeding Bird Survey (BBS) data. Habitat loss and fragmentation due to land use changes is thought to be one of the major factors contributing to the decline. BBS routes, the primary source for monitoring bird population trends, include 50 sampling stops every 0.8 km. Although data from BBS routes are extrapolated to determine regional trends in bird populations, it is important to understand the effects of habitat changes at the stop-level along BBS routes. Route-level analysis of habitat changes may mask important changes that are occurring at a smaller scale particularly for the cerulean warbler which displays several micro-scale habitat preferences. We are examining cerulean warbler habitat and population changes in its core breeding range of the Ohio Hills and Cumberland Plateau physiographic regions. We quantified land cover changes within 300 m of BBS routes in the core cerulean warbler breeding range of Ohio, West Virginia, and Kentucky by digitizing aerial photographs from two time periods: the 1980s and 2004. We also quantified land cover changes within 300 m of BBS routes with the National Land Cover Dataset (NLCD) from 1992 and 2001. The hand-digitized aerial photos will be compared with the NLCD to determine how similar the two methods are in quantifying land cover changes. We then compared stop-level land cover changes with stop level changes in cerulean warbler detections within the same time periods along the BBS routes. This will allow for a more detailed analysis of how well habitat changes along BBS routes reflect the changes in cerulean warbler populations.

Proc. Annu. Conf. Southeast. Assoc. Fish and Wildl. Agencies 61:131