Canada Warbler Habitat Suitability in an Active Industrial Forest in West Virginia

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Abstract: Canada warbler *(Wilsonia canadensis)*, a woodland breeding songbird of special concern in West Virginia, has been declining throughout its range at a rate of 3.5% since 1980 (0.5% within West Virginia and 4.6% in the Allegheny Plateau Physiographic Region). While Canada warblers use primarily moist mixed coniferous-deciduous forest, they can be disturbance specialists at higher elevation locations in the southern portion of their range, including West Virginia, suggesting timber harvests might be an effective management option. The objectives of this study were to determine whether timber harvests are a viable management tool in an actively harvested industrial forest in West Virginia and to determine the effects of different timber harvest intensities. We conducted point counts at the MeadWestvaco Wildlife and Ecosystem Research Forest from 1996 through 1998 and 2001 through 2003 to determine locations at which the warblers were present and modeled habitat suitability for each year using weights of evidence approach. Data layers included in the models were wetness index, elevation, slope, aspect, land cover, distance to stream, and distance to road. In 1996, early successional habitat comprised 2.2 % of the study area; this had increased to 14.1 % by 2003. The average probability of detecting a Canada warbler within the forest decreased from 37% in 1996 to 12% in 2001 but then rebounded and surpassed the original, reaching 43% in 2003. Similarly, all harvest intensities resulted in higher final average probabilities in 2003 than in 1996 with 20-year (48% versus 38%) and 40-year (46% versus 41%) rotations having higher average probabilities than 80-year rotations (35% versus 31%). Overall, this study indicates that timber harvests can be a successful management option for Canada warblers but that a lag period exists before the beneficial effects are evident. To examine longer-term response, we are conducting point counts in 2007; these results will be incorporated into the analyses.

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