

Food Plants for Northern Bobwhite and White-tailed Deer in Intensively-managed Loblolly Pine Stands

Graham Marsh, Warnell School of Forestry and Natural Resources, University of Georgia, Athens, GA 30602

Steven B. Castleberry, Warnell School of Forestry and Natural Resources, University of Georgia, Athens, GA 30602

Darren A. Miller, Timberlands Technology, Weyerhaeuser NR Company, Columbus, MS 39704

T. Bently Wigley, National Council for Air and Stream Improvement, Inc., Clemson, SC 29634

Vanessa R. Lane, Warnell School of Forestry and Natural Resources, University of Georgia, Athens, GA 30602

Karl V. Miller, Warnell School of Forestry and Natural Resources, University of Georgia, Athens, GA 30602

Abstract: Intensive silvicultural regimes can dramatically increase loblolly pine (*Pinus taeda*) yields in the southeastern United States. However, these treatments may negatively affect early successional habitat conditions for white-tailed deer (*Odocoileus virginianus*; hereafter, deer) and northern bobwhites (*Colinus virginianus*), two regionally-important game species. Therefore, we examined the response of deer and quail food plants to six stand reestablishment treatments on six sites in the North Carolina Lower Coastal Plain. We designed treatments to represent an intensity gradient of silvicultural regimes incorporating chemical site preparation (CSP) of Chopper, mechanical site preparation (MSP), herbaceous release (Arsenal + Oust, banded or broadcast), and pine spacing. We measured percent cover of all vegetation by growth form (vine, grass, forb, woody, etc.) during seven growing seasons between 2001 and 2009. We also classified vegetation as preferred or non-preferred for deer and quail using information from published literature. Although release treatments temporarily reduced deer and quail forage abundance, all plant groups recovered quickly. Coverage of preferred woody plants was reduced on treatments receiving CSP. Richness of woody and herbaceous species preferred by deer and quail declined with increasing management intensity. Treatments with the lowest percent cover of woody plants had the highest coverage of preferred herbaceous plants. Coverage of herbaceous quail food plants was greatest during the second growing season, whereas coverage of preferred herbaceous deer food plants was greatest during the third and fourth growing seasons. Coverage of herbaceous plants declined after the fourth growing season and did not differ among treatments. Wide spacing resulted in a greater abundance of preferred woody, but not herbaceous cover. After eight growing seasons, treatment effects on woody food plants for both species were still evident in treatments incorporating CSP. Based on our findings, moderate intensity stand reestablishment regimes that provide reasonable control of woody vegetation and use wider spacings may promote a greater abundance of high quality preferred food plants for longer periods following planting.

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