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Predicting nest site selection of eastern wild turkeys within a landscape dominated by agriculture and silviculture

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Abstract

Much of the landscape in the Southeast is now a mosaic of habitat fragments dominated by agricultural and silvicultural practices. The interspersion of fields, hardwood stands, pine plantations, etc., combine to form a landscape matrix of habitat types available for wildlife. In the past 15 years the establishment of the Conservation Reserve Program (CRP) has affected the interspersion of habitat types. Since the inception of the CRP in 1985, >830,202 ha of farmland have been converted to tree plantations (mostly pine) in the Southeast. Many biologists think that the conversion of cropland to pine plantations has had a negative impact on plant and wildlife diversity and has decreased both the quantity of good early successional habitat and the diversity within the landscape matrix in which many species of wildlife previously thrived.

Although the eastern wild turkey (*Meleagris gallopavo silvestris*) is adaptable and has flourished in the

Southeast, pine plantations have hindered expansion of some existing populations. The quality of nesting habitat and the resulting nesting success are not well known in this landscape dominated by agricultural and silviculture practices. In 1998 and 1999, 34 radio-marked hens were monitored in Burke County, Georgia to determine nesting success and nest site selection. A geographic information system (GIS), GPS data of wild turkey nests and vegetation plots, and polygon coverages digitized from digital ortho-photographic quarter quadrangles (DOQQ) were used to build habitat maps of all nest sites and the surrounding locale. Predictive models of nest sites and random sites were developed using these spatial data.

The predictive models could be used to project the potential effect that similar modifications in similar landscapes might have on wild turkey populations throughout the Upper Coastal Plains of Georgia. Scaling up from the site-specific model to a regional prediction would require the use of land cover data from satellite observations. To facilitate future regional evaluations, we classified satellite data into relevant land cover classes using training site data from around nest sites. We evaluated the accuracy of the classification using vegetation data collected around the other nest sites. The classified satellite data provided the land cover matrices that were evaluated and compared to the habitat model of the study sites in which nesting occurred. Results included qualitative evaluation of classified satellite land cover maps to habitat maps used to develop predictive models. Results from this study can help land managers classify areas that are high priority for habitat manipulation to improve nesting opportunities for eastern wild turkey.