

FIELD APPLICATION OF SUSTAINED-YIELD HARVEST MANAGEMENT FOR NORTHERN BOBWHITE IN TEXAS

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ABSTRACT

Sustained-yield harvest (SYH) is considered a potentially viable strategy for managing harvest of northern bobwhites (*Colinus virginianus*). However, application of SYH has not been evaluated for northern bobwhites. We evaluated the application of using SYH as a harvest management strategy for bobwhite during the 2007–2008 and 2008–2009 hunting seasons in 2 ecoregions of Texas (Rolling Plains, South Texas Plains). We collected field data at 3 study sites/ecoregion (900–1,900 ha each; 2 hunted sites and 1 control) to estimate 4 demographic parameters (fall and spring density, overwinter survival in the absence of hunting, and harvest rate). We used these data to parameterize the additive harvest model for bobwhites and compare predictions of spring abundance of the model with field estimates. The additive harvest model, compared to field estimates, consistently underestimated spring population density (mean \pm SE) by $55.7 \pm 17.8\%$ (2007–2008) and $34.1 \pm 4.9\%$ (2008–2009) in the Rolling Plains, and by $26.4 \pm 25.3\%$ (2007–2008) and $49.1 \pm 2.1\%$ (2008–2009) in the South Texas Plains. Implementing SYH in the field, despite its potential benefits, will be challenging given the need for reliable estimates of 3 key population parameters (fall and spring density, and natural mortality in the absence of hunting) and the high variation often associated with them. Conservative harvest prescriptions based on the lower 95% CIs of fall density estimates may permit sustainable harvest despite variation in density estimates.

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Key words: *Colinus virginianus*, northern bobwhite, South Texas, sustained-yield harvest

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