Landscape Effects on Duck Nesting Success in the Missouri Coteau Region of North Dakota: Preliminary Analyses [TWS]

Scott Stephens and Jay Rotella
Department of Ecology, Montana State University, Bozeman, MT 59717

Mark Lindberg
University of Montana, Missoula, MT 59812

Jim Ringelman
Ducks Unlimited Inc.

Understanding relationships between landscape characteristics and demographic parameters is a critical component of maintaining viable populations in human altered ecosystems. Thus, this information is paramount for natural resource managers charged with implementing successful conservation programs. We are currently investigating nesting success rates for dabbling ducks across a gradient of landscape types in the Missouri Coteau region of North Dakota. A variety of functional forms of the relationship between nesting success and the amount of grassland cover in the landscape are possible. Each form would result in dramatically different management implications, if operating. We used simulation modeling to help guide the design of this study to maximize our ability to discern among the various forms of this relationship. The appropriate scale at which to measure the landscape characteristics was also of interest in this work. This study was designed to examine landscape characteristics at 4 and 36 square mile spatial scales. Eighteen study sites were selected using satellite imagery to obtain a range of grassland levels at both the 4 and 36 square mile scale. As a result, study sites encompass the full gamut of landscape types from those dominated by agricultural fields to sites entirely comprised of native pasture. During the first field season, 2,200 duck nests were located using chain drag techniques and monitored for success along with over 150 nests of other grassland nesting birds. Preliminary estimates of nesting success from this first field season will be presented along with initial plots of the grassland-nesting success relationship.