

FEATURE ARTICLES

AVIAN NEST SUCCESS IN MIDWESTERN FORESTS FRAGMENTED BY AGRICULTURE

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*Abstract.* We studied how forest-bird nest success varied by landscape context from 1996 to 1998 in an agricultural region of southeastern Minnesota, southwestern Wisconsin, and northeastern Iowa. Nest success was 48% for all nests, 82% for cavity-nesting species, and 42% for cup-nesting species. Mayfield-adjusted nest success for five common species ranged from 23% for the American Redstart (*Setophaga ruticilla*) to 43% for the Eastern Wood-Pewee (*Contopus virens*). Nest success was lowest for open-cup nesters, species that reject Brown-headed Cowbird (*Molothrus ater*) eggs, species that nest near forest edges, and Neotropical migrants. The proportion of forest core area in a 5-km radius around the plot had a weakly negative relationship with daily survival rate of nests for all species pooled and for medium or high canopy nesters, species associated with interior and edge habitats, open-cup nesters, and nests located between 75 and 199 m from an edge. The proportion of forest core area was positively related to daily survival rate only for ground and low nesters. Our findings are in contrast to a number of studies from the eastern United States reporting strong positive associations between forest area and nesting success. Supported models of habitat associations changed with the spatial scale of analysis and included variables not often considered in studies of forest birds, including the proportion of water, shrubs, and grasslands in the landscape. Forest area may not be a strong indicator of nest success in landscapes where all the available forests are fragmented.

Key words: agriculture, Driftless Area, forest fragmentation, functional group, landscape, midwestern United States, nest success.