

## Forest Fragmentation

What's happening to bird species in the United States and around the world could impact or reflect what's happening in Illinois. This issue, we present two recent studies on forest fragmentation, a particularly troublesome problem for breeding birds in Illinois.

### Fragmentation May Limit Songbird Sex Lives

Researchers have discovered a surprising factor in the decline of songbirds in North America: forest fragmentation may put a cramp in their sex lives.

"Our results suggest a new link between social behavior and habitat choice in fragmented landscapes," said Ryan Norris, who did this work at York University in North York, Ontario, Canada, and is now at Queen's University in Kingston, Ontario, and Bridget Stutchbury of York University.

Norris and Stutchbury studied the effects of fragmentation on male Hooded Warblers (*Wilsonia citrina*). To see if fragmentation restricts this species' movements, the researchers radio tracked 20 of the warblers in forest fragments separated by agricultural fields in northwestern Pennsylvania. Ranging from 1.7 to 6 acres, these isolated fragments were similar in size to the warblers' breeding territories in contiguous forest.

Unexpectedly, Norris and Stutchbury found these low levels of isolation did not restrict the birds' movements. Rather, males in fragments spent far more time out of their territories than those in contiguous forest (about 16% versus 5%), and also flew farther. About 60% of their forays were to woodlots occupied by another pair, suggesting they traveled between fragments primarily to mate with other males' females.

"This 'need' for sex may explain why long-distance forest migrants actually avoid settling in extremely isolated forest fragments. In other words, if there are no opportunities to cheat on your mate then it's not worth settling in certain highly fragmented areas," said Norris.

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### Fragmentation Linked to Stress in birds

Amazon forest birds are particularly sensitive to habitat fragmentation. Even patches as big as 250 acres are missing many species, but no one knows why. New research offers a clue: birds in fragments have slower-growing feathers, suggesting they are more stressed, which could decrease survival and reproduction.

"There might be physiological consequences for birds that live in fragments," said Jeff Stratford of Auburn University in Auburn, Alabama. He did his research with Philip Stouffer of Southeastern Louisiana University in Hammond, Louisiana.

Stratford and Stouffer compared feathers from two common bird species (the White-crowned Manakin and the Wedge-billed Woodcreeper) that were captured in either forest fragments or contiguous forest near Manaus, Brazil. To determine how fast the feathers had grown, the researchers measured the daily growth bars. Healthier birds presumably have feathers with wider growth bars.

The researchers found that feathers from birds captured in forest fragments had grown slower: for instance, feathers from birds in 2.5-acre fragments grew 10% slower than those from birds in contiguous forest.

Why do birds in fragments have slower growing feathers? Stratford and Stouffer ruled out the obvious



*The Hooded Warbler, which breeds in Illinois, may exhibit atypical social behavior in fragmented landscapes, according to a recent study. Dennis Oehmke took this photo of a male Hooded Warbler at Horseshoe Lake Conservation Area.*