Species habitat thresholds in landscapes
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As human populations grow, more of a landscape’s native habitats are lost to agriculture, road construction, or urbanization. Conversion of natural lands to human uses results in: (1) a loss in the amount of habitat available to wildlife, and (2) blocks of habitat that are smaller and more isolated from each other. Habitat loss and fragmentation are thought to be important factors causing widespread population declines of forest-nesting birds. But are these two factors equally important in explaining population declines? Do species respond to habitat changes gradually or do they exhibit threshold responses? Are there characteristics of species that make them more or less susceptible to loss and fragmentation of habitats? How do natural disturbances interact with habitat availability to affect populations? Answers to these questions are needed to better understand how to balance biodiversity conservation and human uses of natural resources.

I have been collaborating with scientists at Colorado State University, the University of Wisconsin, the University of Vermont, Carleton University, Baylor University, and Patuxent Wildlife Research Center on a series of studies designed to understand population dynamics of species that inhabit fragmented landscapes. These studies use both simulation modeling and statistical analyses relating bird populations to abiotic conditions, land use, housing development, the amount and arrangement of native habitats, and the occurrence of natural disturbances.

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Wisconsin Public Radio: Many birds of native species declining (08/05/04) A new study shows more evidence of rural development affecting wildlife populations. Researchers at the UW Madison say that in some developing areas, you'll see fewer native species of birds. Requires RealPlayer (http://clipcast.wpr.org:8080/ramgen/wpr/news/news040805cq.rm)
ScienceNow: Birds from broken homes
(http://sciencenow.sciencemag.org/cgi/content/full/2002/429/1)

BioBriefs section in BioScience: Fragmentation may also reduce stability of animal populations
http://www.jstor.org/stable/1313344