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Forests Of The Continental U.S. Continue To Fragment

A recent report by USDA Forest Service researcher Kurt Riitters shows that although U.S. forests are still connected over large regions, fragmentation is pervasive enough to potentially affect the ecological processes on most of these lands. In an article in the December issue of *Ecosystems*, Riitters and fellow researchers from the Environmental Protection Agency (EPA) used high-resolution land-cover maps derived from satellite images to model forest fragmentation across the continental U.S.

"Fragmentation refers to both the amount of forest and its spatial pattern," said Riitters, who is deputy project leader for the Southern Research Station (SRS) Forest Health Monitoring program in Research Triangle Park, NC. "Although the actual extent of forest has increased in some areas of the U.S., the spatial patterns indicate extensive fragmentation."

The study found that overall, 43.5 percent of U.S. forest was within 90 meters (295 feet) of forest edge, and almost 62 percent was within 150 meters (492 feet) of the edge. Less than 1 percent was more than 1230 meters (4036 feet) from the forest edge. Yet the study also found that where forest existed, it was dominant: 73 percent of all forest was in landscapes that were at least 60 percent forested. About half the fragmentation consisted of small (less than 7.29 ha) perforations in interior forest areas.

"Our findings show that forest fragmentation is pervasive and extensive, with three-fourths of all forest found in or near the edges of large, heavily fragmented regional forests," said Riitters. "Most of the large interior forests in the U.S. are publicly owned, or unsuitable for agriculture or urban development. Historic patterns of forest clearing have left relatively little interior forest along many of the major rivers, near urban areas, or in fertile agricultural areas."

Fragmentation affects habitat quality for the mammal, reptile, bird, and amphibian species found in forests. Some species are adapted to edge or other disturbed habitats, but changes in forest spatial patterns more often result in negative effects on habitat suitability and the ability of wildlife to move through the landscape--and in the spread of invasive species from disturbed edges. Even small perforations introduce these impacts deeper into the forest.

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Results from this research were also used in "The State of the Nation's Ecosystem," the environmental study recently released by the Heinz Center for Science, Economics and the Environment (<http://www.heinzctr.org/Programs/Reporting/overview.htm>).

This story has been adapted from a news release issued by USDA Forest Service/Southern Research Station.