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**Abstract:** Spatial configuration and distribution of landscape elements have implications for the dynamics of forest ecosystems, and, therefore, for the management of these resources. The forest cover of Champaign County, in east-central Illinois, was mapped from 1940 and 1993 aerial photography and entered in a geographical information system database. In 1940, 208 forest patches amounted to 1,998 ha (or 0.8% of the county area). These patches had a mean area of 10 ha, a mean perimeter of 2,016 m, a mean perimeter to area ratio of 330, a fractal dimension of 1.47, and a mean nearest neighbor distance of 391 m. In 1993, 116 forest patches covered 3,370 ha (or 1.3% of the county area). These patches had a mean area of 29 ha, a mean perimeter of 4,272 m, a mean perimeter to area ratio of 247, a fractal dimension of 1.56, and a mean nearest neighbor distance of 558 m. However, only 179 ha and 480 ha can be considered interior forest (i.e., forest area within 100 m from the edges) in 1940 and 1993, respectively. In both years, almost all forest patches were located along the major rivers and streams of the county. During this 53 year period, the forest patches of this county have increased in size and shape complexity, and at the same time have become less fragmented. These changes resulted mostly from natural reforestation in portions of land adjacent to older forest patches, even though the number of forest patches was reduced in this period. Although these changes should result in improvements in habitat characteristics for the forest biota, this is still a very fragmented landscape and management alternatives should consider the spatial characteristics of these forest patches.

Alfisols accounted for the largest proportions in forest cover among the soil orders present in the county in both years (7% and 10%, respectively). However, the soil series with the largest proportions in forest cover at any of these two dates were two Mollisol series with severe flooding problems: the Ross and Colo series. These results suggest that farming restrictions have had an important impact in forest cover changes during this period.

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