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Land use history, abiotic gradients, and mesic forest understories in the Southern Blue Ridge Mountains.

Maps of landscape change show that forest cover has increased since 1950 in many areas of the Southern Blue Ridge Mountains due to abandonment of farming and decreased in other areas due to suburban expansion. This legacy of change has resulted in a mosaic of forest stands in which community composition varies with abiotic gradients, stand age, landscape context, and disturbance history. Field studies were conducted to examine plant community composition with respect to: (a) new versus pre-existing forest stands, (b) small versus large forest patches, and (c) varying levels of anthropogenic disturbance. Resulting data show that the composition of herbaceous plant communities was correlated with these factors. Moreover, species with varying life-history traits responded differently. Species with limited dispersal capability and specialized habitat requirements were less likely to be present in fragmented and young forest stands. Species with weedy life-histories were more abundant in new stands and in small forest fragments, but largely absent from large patches. Within a given forest stand, the spatial structure of herb populations was correlated with land use history. After removing the influence of abiotic gradients, aggregations of individuals tended to be smaller and more patchy in small forest fragments for most species. In large stands, spatial structure of habitat specialists was correlated with land use history.

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