

Spatial Analysis of Potential Impacts of Local Forestry Ordinances

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Local government organizations in Virginia have created a variety of ordinances that restrict forestry operations. A recent study found over 250 forest-related ordinances in Virginia, nearly a five-fold increase in 13 years. In order to estimate the potential impact of these ordinances on forest production, we used spatial analysis to determine the amount of forest area within four study counties that would be directly or indirectly affected by ordinance implementation. Direct impacts included restrictions on harvesting trees within buffer zones of streams, water bodies, roads, and parcel boundaries. Indirect impacts included the parcelization of forest areas (by these buffers) into isolated patches less than 20 acres, which are far less likely to be managed for production of timber. Using simple GIS operations of buffer and overlay in conjunction with publicly available datasets of forest cover, roads, streams, zoning, and parcel boundaries, we found that forest ordinances affected nearly 30% of operable forest area in the four study counties. For every three acres directly affected by the ordinances, another acre was indirectly affected by parcelization from buffers. Ordinances designed to protect visual quality (e.g., road and parcel boundary buffers) affected twice as much forest area as ordinances designed to protect water quality.

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