Remote Sensing of Forest Health Trends in the Northern Green Mountains

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Northeastern forests are being impacted by numerous environmental stressors, including acid deposition, invasive pests, and climate change. The health of forest ecosystems is of increasing concern to land managers and citizens as stressors converge on the region. Traditional forest health monitoring is often limited to specific sites experiencing catastrophic decline or widespread mortality. Remote sensing can complement these efforts by providing comprehensive forest health assessments over broad regions. Subtle changes in forest canopy condition can be monitored over time by linking field-measured forest health metrics to spectral vegetation indices applied to satellite imagery. This project used historical archives of Landsat 5 TM imagery and geographic information systems to examine temporal and spatial patterns of forest health in the northern Green Mountains from 1984 to 2009. Results indicate that overstory forest condition has remained relatively stable over the past 25 years, although specific sites show subtle decline relative to landscape-scale trends. Current research aims to identify environmental factors common to sites with declining canopy health.