

Exploring interactions between landscape change and land preservation

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Abstract: The creation of land preservation policies are, in part, a response to real and perceived landscape changes. Those landscape changes continue after the preservation policies are implemented. This study examines the interaction between landscape change and land preservation in the context of assessing how ongoing land use/land cover change may be impacting the capacity of land preservation programs to meet their goals. It focuses on two New Jersey counties, Hunterdon and Burlington, using multiple years of land use/land cover data (1986, 1995, 2002 and 2007) to assess change.

Major findings include: * In both counties, agricultural land is developed more than expected at random, and upland forest developed less than expected * A small but significant proportion of land in each county transitions from agriculture to upland forest before being developed * 45% of agricultural land loss in Hunterdon and 16% in Burlington is the result of agricultural converting to upland forest, which impacts the amount land eligible for farmland preservation * Simple measures of landscape change underestimate the amount flux in upland forest, meaning that mature upland forests are more threatened than those simple measures suggest * Measures of landscape fragmentation show that upland and wetland forests are suffering from fragmentation, which decreases their ecological integrity * Preserving and establishing the contiguity of farmland, parkland and wildlife habitat- all major goals of land preservation – are being made more difficult by the patterns of development in both counties * In both counties, a significant percentage of preserved emergent wetland are found on preserved farmland * Certain areas targeted for preservation are developing faster than other targeted areas in both counties – grasslands and conservation areas in Hunterdon, greenway target areas in Burlington, and farmland eligible for preservation in both counties.

The study shows how pre – and post-implementation assessment of land use/land cover change provides important information that can be used to adjust the targets and goals of land preservation policies to make them more effective. Furthermore, the study confirms the importance of having multiple, commensurate sets of land use/land cover data spanning a multi-decade period. Further research will include integrating new land use/land cover data into the analysis.