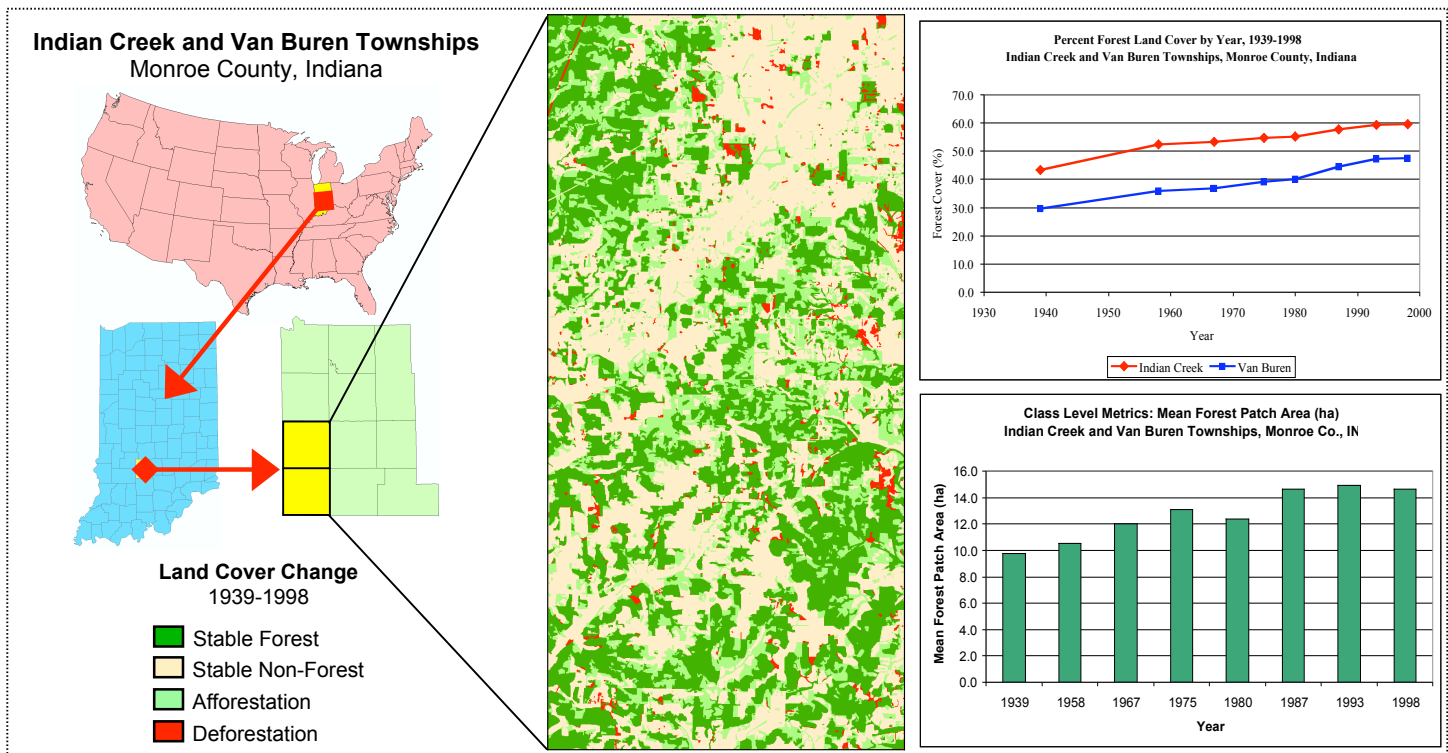


Landuse/Landcover change in South-central Indiana: Agent-based Modeling and Simulation of Forest Regrowth on Private Lands.

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Project Description:

Our research explores the interactions between people and the environment in south-central Indiana between 1940 and the present. We use modeling as well as other methods to explore why some areas have reforested while other areas have deforested during this period. Overall, the amount of forest cover in our study area has increased from approximately 43% to nearly 60% of the landscape, despite increasing population.

In our model, households make land use decisions based on their household characteristics, the quality of their land holdings and other factors like crop and timber prices. We use a modeling technique called Agent-based Modeling to explore how households these make decisions about their landholdings.

Land cover data derived from satellite imagery and aerial photos is used to match modeled landscapes to what landcover changes actually occurred. These data are used in combination with landowner surveys to help understand how landowners make land management decisions in the context of state and federal policies as well as other factors.

Project Goals:

- Explain why some areas of south-central Indiana reforested between 1940 and the present despite increasing population
- Explain how federal and state policies affect landuse decisions and the outcome of these decisions on the landscape
- Explore how different people react to policies and the impact of these diversities on landscape change

FOR FURTHER READING:

Evans, T. P., and Kelley, H. In review. Scale Issues in Agent-Based Models of Landcover Change. *Journal of Environmental Management*.

Kelley, H. and Evans, T. P. In review. The Relative Influence of Land-owner and Landscape Heterogeneity in an Agent-Based Model of Land Use. *Journal of Economic Dynamics and Control*.

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