Analysis of New York State Forests’ Affect Upon Residential Property Values

Constructing a Viewshed Analysis Using ArcGIS ModelBuilder

A presentation of Master’s Thesis Research
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Research Question: Do property values increase when a neighboring State Forest is in view?

Study Area: Single Family Homes in Cortland, Tioga, and Tompkins Counties, NY
Value of a Forest View

Poudyal, et al (2010) isolated the affects of forest views from the affects of views of other types of landscapes, to find that forest views are positively correlated with residential property values.

Richness of View

Sander and Polasky (2009) calculated the percentage of different land cover classes within each view, to assess the affect of “richness of view”.
Property Values

Cheshire and Sheppard (1993) state that housing is a composite and heterogeneous good, whose value is comprised of structural qualities, and location and accessibility to amenities.

Location/Access

Thorsnes (2002, as cited in Cavailhes, 2009) found that property values increased with access to forests.
Conceptual Design - Study Area
Part 1: Construct a Viewshed Model that calculates the percentage of view (environmental variable)

Part 2: Use a statistical model to understand how each variable affects the selling price of a property

Model: Selling Price = Environmental + Structural + Neighborhood
Distance of a View in Central NY = 8 miles
GIS Model

Single Family, Year Round Residences Within 8 Miles of NY State Forest

DEC State Forests.shp
DEC Outputs

Zonal Statistics as Table
Table to Table
Add Field
Calculate Field

Feature to Point
Viewshed
View Surface

Private Forests.shp
Private Forest Outputs
GIS Model
Viewshed Outputs

Out of 1954 parcels:

- 508 have a view of a NY State Forests
- 1830 have a view of Private Forests

Statistical Methods

A preliminary test in ArcGIS with the OLS (ordinary least squares) tool showed that views of private forests were positively correlated with property values.
Results Thus Far
Parcel Data
Cortland County Parcel Data. 2012. Provided by Cortland County Planning.
Tioga County Parcel Data. 2012. Provided by Tioga County ITCS
Tompkins County Parcel Data. 2012. Provided by Tompkins County ITS.

Rasters

Forest Data
DEC Lands. New York State Department of Environmental Conservation, Bureau of State Land Management.


