Amenity Value of Urban Forest Landscapes Attributed to Houses within a 10-Minute Driving Distance

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Introduction

Forest landscape restoration aims to regain the ecological integrity and enhance human well-being in and around deforested or degraded forest landscapes. Funding opportunities for restoration projects are competitive (Barrow et al. 2002).

Objective of this research is to identify priority areas for forest landscape restoration with economic benefits (i.e., increased amenity value from forest restoration) and to estimate the amenity values of restoring forest landscapes at potential target sites.

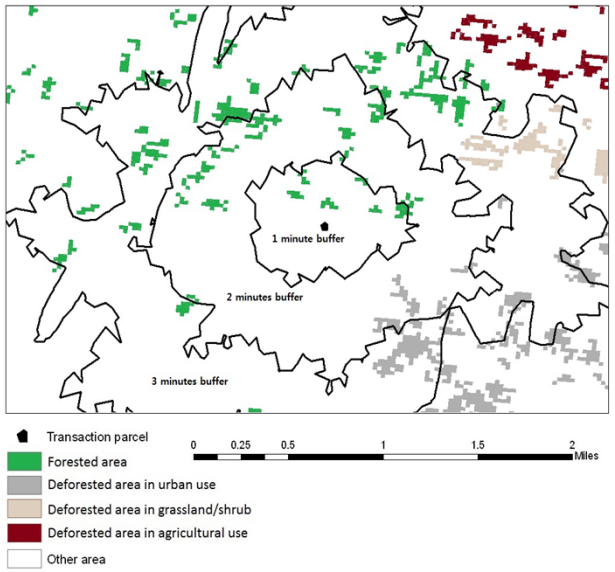
Data Driven Approach

The first step is to construct a sequence of 10 driving-time buffers around each home sales transaction.
In the second step, a sequence of 10 hedonic regressions is estimated for single-family housing sales transactions using the deforested and forested land areas within the respective 1-to-10 minute buffers as independent variables.
In the third step, the regression coefficients for the forested area and the deforested areas are used to calculate the respective marginal implicit prices from each of the 10 regressions.
The fourth step is to calculate the difference between the marginal implicit price of deforested areas and forested area for each 1-minute increment in the driving-time buffer from 1 to 10 minutes.
The fifth step entails identifying the hypothetical target areas for forest landscape restoration.

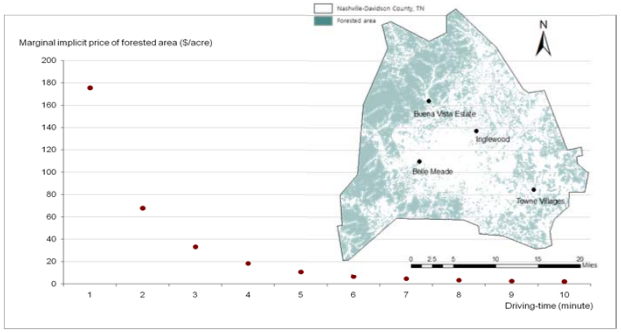
Case Study: Nashville, TN

The rapid loss of forest land in the Nashville area has increased concerns about changes in the spatial pattern of forest landscapes and heightened the community's focus on forest landscape restoration

10 Driving-time Buffers



Marginal Implicit Prices



Values of Target Area

Driving time	Added Values in the Selected Target Sites			
(Minutes)	Belle Meade	Buena Vista Estate	Towne Village	Inglewood
0 – 1	$5,879,496	$11,420,383	$13,729,085	$10,158,292
0 – 2	$8,393,968	$12,394,913	$17,268,652	$16,685,805
0 – 3	$9,798,477	$13,162,711	$19,290,044	$18,957,255
0 – 4	$10,210,962	$13,590,012	$19,694,448	$19,746,195
0 – 5	$10,459,522	$13,709,685	$19,811,788	$20,050,043
0 – 6	$10,593,424	$13,764,209	$19,849,698	$20,213,030
0 – 7	$10,692,496	$13,808,883	$19,874,028	$20,314,959
0 – 8	$10,754,871	$13,848,467	$19,886,371	$20,359,145
0 – 9	$10,788,404	$13,870,087	$19,896,735	$20,383,053
0 – 10	$10,808,829	$13,884,146	$19,902,871	$20,401,179

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